

## Appendix C: Human Occupation and Use of the Loess Hills

**Paleoindians.** Humans arrived shortly after the formation of this unique landscape in the late Pleistocene epoch of the Cenozoic era. As the glaciers receded, the winds blew the fine quartz-like soil into mounds and the earliest Paleoindians,<sup>1</sup> small bands of foragers who led a nomadic existence, searched the hills and plains in search of mammoths, mastodons, and early forms of bison (Benchley et al. 1997; Alex 2000). These people are represented in the archeological record by highly distinctive chipped stone projectile points called fluted points, which served as spear tips or hafted cutting tools such as knives.<sup>2</sup>

As the Pleistocene big game herd animals became extinct due to climatic changes and/or hunting, Late Paleoindians (circa 10,500 B.C.-8500 B.C., and possibly later in some regions) exploited fauna of types that exist today, primarily modern bison (Benchley et al. 1997; Alex 2000). The tool kit of these later hunters and foragers was more diversified. A variety of projectile point forms were used, as well as chipped stone scrapers, choppers, knives, and ground stone adzes.

**Archaic.** The next archeological period represented in the Loess Hills is the Archaic.<sup>3</sup> As the climate became warmer and drier following the recession of the glaciers and the deposition of loess, the economy of Archaic peoples became increasingly reliant on hunting and foraging of more diverse food resources than those exploited during Paleoindian times. Bison hunting continued, but a wide range of other animals were also exploited, such as elk, deer, wolf, fish, turtle, and shellfish. Small family groups moved about seasonally in search of food resources. Although still highly mobile, Archaic peoples made greater use of semi-permanent base camps as well as smaller seasonal camps. The first evidence for plants serving as a dietary supplement appears in the Archaic period. Although ground stone adzes are known from late Paleoindian times, Archaic peoples made use of a wider variety of ground stone tools for the chopping, grinding, and crushing of plant foods. Projectile points diversified considerably in type, and many bear single notches in each side to facilitate hafting to a

---

<sup>1</sup> Circa 11,000 B.C.-10,500 B.C.

<sup>2</sup> Paleoindian archeological sites are rarely found, primarily due to geological factors. Many landforms in which Paleoindian campsites would be found have either been eroded or deflated, removing the sedimentary context and many of the artifacts themselves, or are deeply buried and seldom encountered for that reason (Thompson et al. 1984; Alex 2000). In the Loess Hills, Paleoindian projectiles have been found as isolated artifacts in several locations, but no habitation or game kill/processing sites are known. One of these isolated finds, a Clovis point made of Knife River Flint, a translucent tan chalcedony from western North Dakota, was recently found on the surface of a ridge in Stone State Park in Woodbury County (Molyneux 1998a, 1998b). Most other specimens from the Loess Hills are in the collections of avocational archeologists (Rowe 1951; Morrow and Morrow 1993; Billeck 1998). Paleoindian projectiles of Clovis, Folsom, Dalton, and Meserve forms have been reported from findspots in the Loess Hills (Benchley et al. 1997). The Office of the State Archaeologist (OSA) GIS data reflect only 12 recorded sites in the Loess Hills where artifacts of the Paleoindian tradition have been found on the ground surface, ten of them fluted points. None of these sites are known to be habitation or game kill sites.

Although evidence of the Paleoindian period in the Loess Hills is meager, the possibility remains of future discoveries of Paleoindian artifacts associated with the remains of extinct proboscideans (mammoth, mastodons) and bison, which were among the large game animals hunted during Paleoindian times. Anderson and Williams (1974) have cataloged sites throughout Iowa where fossil proboscidean remains have been found. Their tabulation included eight locations in Plymouth County, nine in Woodbury, 11 in Monona, 13 in Harrison, four in Pottawatomie, seven in Mills, and one in Fremont County. Clearly, the potential for future discoveries of proboscidean and bison remains associated with ancient man is present.

<sup>3</sup> Circa 8500 B.C. to approximately 800 B.C. or later.

spear shaft or wooden handle. Artifacts interpreted as weights attest to the use of a dart-throwing device known as an atlatl, which served to effectively lengthen arm leverage for throwing spears farther than possible with the unaided arm. Archaic people sometimes heated lithic raw material to improve its flaking qualities for making chipped stone tools. They used the same locations repeatedly when burying their dead. The remains were sometimes accompanied by red ochre powder and personal possessions such as shell beads or tools, attesting to group-held beliefs about territoriality and the afterlife.

Throughout the approximately 8,000-year span of the entire Archaic period, small mobile groups, probably based on nuclear or extended families, engaged in hunting and gathering as primary economic pursuits. However, through time the resources exploited became gradually more diversified, groups became less mobile as greater use was made of seasonal resource exploitation base camps, band composition became larger and more cohesive, and people came together repeatedly to bury their dead in given localities and with more variety of burial artifact accompaniments. These changes were gradual and are difficult to perceive in the archeological record because Archaic-age archeological sites are few and generally little investigated, particularly in the Loess Hills. The eventual transition to what archeologists call the Woodland period is marked not so much by changes in lifestyle as by the introduction or elaboration of new ways for obtaining food and burying the dead.

Early Archaic<sup>4</sup> remains are likely to be found buried in Corrington Member alluvial fans in the larger river valleys that cut through the Loess Hills.<sup>5</sup> During the Early Archaic there was a shift toward exploitation of smaller forms of animals as the Pleistocene large game became extinct. Early Archaic sites are usually identified by distinctive projectile forms that serve as temporal hallmarks of the time period.

---

<sup>4</sup> Approximately 8500 B.C. to about 5500 B.C. (Alex 2000).

<sup>5</sup> A highly important Archaic bison kill site was discovered deeply buried in the Corrington Member of the DeForest Formation during construction of municipal sewage facilities just east of the Loess Hills near Cherokee, Iowa, in 1973 (Anderson and Shutler 1978; Anderson and Semken 1980). Once thought to contain components of both the Paleoindian and Archaic traditions, all three of the components present at the Cherokee Sewer site (13CK405) are now considered to be Archaic in age (Alex 2000). At the Cherokee Sewer site, the lowest of three cultural layers, Horizon III, was Early Archaic. It yielded lanceolate and stemmed projectiles in association with the bones of three bison that were probably killed in the early winter (Whittaker 1998). Horizon III is interpreted as a bison kill site with a campsite probably located nearby. It dates to approximately 7600-7200 B.C. (Alex 2000) and is the oldest game kill component known in Iowa. Horizon II, dating to about 6200-5900 B.C., also represents an Early Archaic late fall-early winter kill site and processing station (Alex 2000). Horizon I represents a Middle Archaic game kill site. Together, all three components at the Cherokee Sewer site present a rare opportunity to compare long-term "economic and adaptive strategies...in the light of detailed climatic and environmental studies" (Anderson and Shutler 1978).

Only two Early Archaic sites are known in the Loess Hills (GIS data from the OSA). Others undoubtedly exist but they are buried and difficult to detect without the use of some form of deep subsurface archeological survey method such as coring. Probably the better known of the Loess Hills Early Archaic sites is the Hill site (13ML62) in Mills County, which was discovered in 1958 when it was exposed during channel work along Pony Creek as part of a county road construction project. The site was investigated by W.D. Frankforter of the Sanford Museum in Cherokee, Iowa, who published several summaries (Frankforter 1959a,b; Frankforter and Agogino 1959 a-c) and a report about the site (Frankforter 1958-1959). No detailed description of the site's investigation has been published. The site was observed as four cultural strata exposed in the Pony Creek bank 17 feet below the surface. It is interpreted as a campsite evidenced by two cultural strata. A radiocarbon assay and projectile forms place the site's occupation in the Early Archaic period (Anderson and Semken 1980; Alex 2000). In addition to five side-notched and one unnotched projectile points, the lithic assemblage from the site comprised a variety of chipped stone knives, scrapers, modified and unmodified flakes, and a ground stone mano, the last of which suggests processing of plant remains. Bison, deer, mole, bird, and turtle bones were found at the site. It is doubtful that any of the site deposit remains intact (Frankforter and Agogino 1959c). The other Loess Hills Early Archaic site, the Pisgah site (13HR2), yielded a side-notched projectile point recovered from a partial bison skeleton. The point resembles projectile points from Zone 7 at the Simonsen site and Horizon II at the Cherokee Sewer site, which infers a similar Early Archaic age (Frankforter 1961; Anderson and Semken 1980; Alex 2000).

During the Middle Archaic<sup>6</sup> period, the trends toward more permanent base camps and specialized resource exploitation that began during the Early Archaic continued (Benchley et al. 1997). Much of this period also corresponds with an extended period of dry weather conditions known as the Hypsithermal (also called the Altithermal), which extended drier, Plains-like conditions eastward into the Prairie Peninsula. Middle Archaic foragers responded to these conditions by seeking campsites near permanent water sources (streams and marshes) where stands of timber survived (Alex 2000).<sup>7</sup>

During Late Archaic times,<sup>8</sup> the appearance of ossuaries<sup>9</sup> implies a larger population base and a more sedentary existence, probably allowed by seasonal harvesting of increasingly diverse and abundant faunal and floral resources fostered by the return of cooler, more moist climatic conditions (Schermer et al. 1995; Alex 2000). Fourteen sites attributed to the Late Archaic period have been recorded in the Loess Hills (GIS data from the OSA). Little is known of Late Archaic settlement or subsistence patterns in the Loess Hills, though it is presumed that the economy remained highly focused on bison hunting and gathering of wild plant foods, a continuation of the Early and Middle Archaic pattern.

<sup>6</sup> Approximately 5500 B.C. to about 3000 B.C. (Alex 2000).

<sup>7</sup> Horizon I at the Cherokee Sewer site, the uppermost cultural level, represents the remains of a Middle Archaic bison kill and processing site dating to approximately 5500-5200 B.C. (Anderson and Semken 1980; Alex 2000). Together, the three cultural levels at the Cherokee Sewer site document a subsistence pattern that persisted for perhaps 2,500 years, from Early Archaic times into the Middle Archaic period. The Cherokee Sewer site is important not only for this reason, but it hints at the existence of similar resources deeply buried in the alluvium in the larger valleys, both within and outside the Loess Hills. Middle Archaic components have been identified at three and possibly four sites in the Loess Hills, one each in Monona and Mills counties and one or possibly two in Plymouth County (GIS data from the OSA).

Two Middle Archaic sites within the Loess Hills have received substantial investigation. One is the Lungren site (13ML224) in the Pony Creek watershed near Glenwood in Mills County. The Smithsonian Institution partially excavated it in 1963 (Brown 1967). Observed as a thin cultural stratum exposed in an eroded gullycutbank about 10 feet below the surface, excavations revealed a hearth and associated midden. A variety of scraping, cutting, and chopping tools were recovered, as well as several hammer stones and a side-notched projectile point similar to ones found in the Middle Archaic (Horizon I) component at the Cherokee Sewer site (Anderson and Semken 1980). The Lungren site is interpreted as a campsite (Brown 1967; Anderson and Semken 1980; Alex 2000).

The most publicized Archaic site in the Loess Hills is a burial site discovered in 1955 in a quarry near Turin in Monona County. At first it was thought to be the remains of individuals from the Paleoindian period, which would represent a find of exceptional rarity. However, a radiocarbon date for the bones of one of the interred individuals indicated a Middle Archaic age instead. Initially called the "Turin Man," the discovery received national publicity in *Life Magazine* (*Life Magazine* 1955), and was summarized in print a number of times (Anderson 1957; Frankforter 1955; Frankforter and Agogino 1959a-c; Johnston 1996; Smith 1961; and Wormington 1955). The most recent and most comprehensive description of the site is by Fisher et al. (1985).

The Turin site (13MN2). was discovered as the result of quarrying operations that eventually led to the exposure of the skeletal remains of four individuals. The first individual was an adult male buried in loess 13 to 20 feet below the ground surface. It was reported to the University of Iowa and was investigated by archeologists from that institution and the Sanford Museum in Cherokee. The second skeleton represented a young female and was found in soil that had slumped from the face of the quarry. The remains of another child and an infant were excavated in situ. The second child (skeleton 3) was buried with a side-notched projectile point similar in form to examples from other sites of Middle to Late Archaic age, as well as 18 beads made from freshwater *Anculosa* shells. The body of the child had been sprinkled with red ocher, similar to Late Paleoindian through Archaic and Early Woodland interments in the woodland areas of the eastern United States. Fisher et al. concluded that the individual interments in a prescribed area at Turin may represent related members of a family group (Fisher et al. 1985). It was later judged that all four individuals had been separately buried in gully fill within the Hatcher Member of the DeForest Formation (Fisher et al. 1985). The gully fill is believed to date in the 3800-3000 B.C. range (Alex 2000). Unfortunately, continued quarrying (Fisher et al. 1985) has destroyed the site of the Turin discoveries.

<sup>8</sup> Circa 3000 B.C. to 800 B.C.

<sup>9</sup> Ossuaries are burials of multiple individuals in common graves.

The Lewis Central School site is the only late Archaic site that has been excavated in western Iowa (Benchley et al. 1997), and has yielded only information of a demographic nature.<sup>10</sup>

**Woodland Indians.** The Archaic period was succeeded by the Woodland,<sup>11</sup> characterized by the introduction of ceramic vessels, burial of the dead in mounds, and increased reliance on wild and cultivated plant foods. All of these developments are known to some extent during Archaic times, but are not documented at Archaic sites in the Loess Hills or adjacent regions (Benchley et al. 1997). Regional differences in artifact assemblages, particularly the decoration of pottery, began to become more distinct through the Woodland period. People were more sedentary than before, living in small hamlets of substantial wattle-and-daub structures. Like the Archaic period, the Woodland period is divided into Early, Middle, and Late subperiods. The regional Woodland variation found in western Iowa, including the Loess Hills, is often termed Plains Woodland or sometimes the Mid-America Woodland tradition (Benchley et al. 1997; Benn 1986). Woodland sites of all ages are generally more abundant than Archaic sites. Woodland components have been recorded at 115 sites in the Loess Hills (GIS data from the OSA). In contrast, only 21 Woodland components have been identified in those areas of the seven counties that lie outside the Loess Hills (GIS data from the OSA), suggesting that Woodland people may have preferred resources that were available in the Loess Hills landform region.

---

<sup>10</sup> The Lewis Central School site (13PW5) was an ossuary excavated at Council Bluffs, Pottawattamie County, in 1975 (Anderson et al. 1977, 1978; Fisher 1978). The site was discovered in the course of earth removal for the construction of the Lewis Central School. Unfortunately, much of the site and the human remains it contained were destroyed before the bones were recognized as human.

The Lewis Central School site yielded the remains of an estimated 25 individuals of both sexes, ranging in age from less than two years old to over 60 (Fisher 1978). The number of individual remains inadvertently destroyed before the discovery was reported is not known. Some of the skeletal remains were correctly articulated, indicating burial in the flesh, while other bones were loose or indisarticulated groups suggesting that decomposition of the flesh had taken place elsewhere. All were believed to have been interred at the same time, suggesting cooperation between several groups or bands of people. Deliberate burial inclusions consisted of a variety of utilitarian items such as side-notched projectile points, chipped stone scrapers, a knife and bifacial tools, a chipped stone drill, unworked flakes of stone, bone awls, an antler tine and beam, and freshwater mussel shell fragments, including one cut into a rectangular shape. By agreement with Native Americans, one bone was radiocarbon dated to the period of approximately 1100 to 800 B.C. (Anderson et al. 1978; Alex 2000). Although now destroyed, the Lewis Central School site yielded a large body of data about the age, stature, pathology, nutrition, and health of an early population that will be useful for comparison with data on other groups elsewhere in Iowa and in the Plains and Prairie regions. Alex (2000) has concluded that the transport of deceased remains from other locations to the Lewis Central School site may represent "the beginning of territorialism among late Archaic hunting and gathering bands in western Iowa."

The removal of bones from the Lewis Central School site played an important role in shaping the Iowa state law under which ancient human remains are exhumed and reburied throughout the state today. At the time of discovery, tensions within the state between the archeological community and Native Americans were high as the result of disparate treatment of American Indian and non-Indian remains disinterred during road construction at the Pacific City Cemetery near Glenwood (Billeck 1993; Pearson 2000), and a violent confrontation between American Indian Movement members and individuals attempting to investigate the reported discovery of human remains near Sioux City in 1972 (Anderson et al. 1979). Initially the Omaha Tribe and other American Indian interests opposed the excavation, removal, and study of the remains at the Lewis Central School site by archeologists. However, when they learned a local undertaker would legally exhume the remains using a bulldozer, Native Americans became supportive of the gentler option of excavation being performed by archeologists. As the result of negotiations between the Native American and archeological parties involved, the remains were excavated, studied, and respectfully reburied in a cemetery created specifically for that purpose. Subsequently, the Iowa legal code governing the study of ancient human remains within the state (defined as remains over 150 years old) required conformation to the precedent set at Lewis Central School. Since passage of this law in 1976, this reburial program has been carried out in cooperation and consultation with Native Americans and today it serves as a model example of a successful program of this nature (Anderson 1985a).

<sup>11</sup> Approximately 800 B.C. to A.D. 1200 (Alex 2000).

The Early Woodland period<sup>12</sup> in western Iowa is characterized by a rather thick and crude form of pottery called Crawford ware (Benchley et al. 1997; Alex 2000). Pottery made during Middle and Late Woodland times was technologically better and more highly decorated. Early Woodland peoples further east, toward the Mississippi River and beyond, sustained higher population densities, were more sedentary, made greater reliance on plant foods, and achieved more social complexity than their neighbors in western Iowa. The Early Woodland inhabitants of Iowa generally lived in seasonally occupied camps that were moved periodically to take advantage of available plant foods such as walnuts and acorns. Cultigens raised included cucurbits, sunflowers, and goosefoot. The Early Woodland period in western Iowa is viewed as a continuation of the Archaic hunting and foraging economy with the introduction of ceramics, but without evidence for the characteristic Early Woodland traits of mound burial and incipient horticulture (Tiffany 1986).

In western Iowa, the Early Woodland period is little known (Benchley et al. 1997; Tiffany 1986), and no sites of this period have been extensively excavated. Early Woodland components have been recorded at only five sites in the seven-county study area, of which four are in the Loess Hills (two each in Fremont and Woodbury counties; GIS data from the OSA). None has been extensively investigated.<sup>13</sup>

There were many changes during Middle Woodland times.<sup>14</sup> Pottery became more sophisticated in shape and decoration; societies are presumed to have become more socially stratified; mound burial became common; and goods and ideas were widely spread through what archeologists call the Hopewell Interaction Sphere (Schermer et al. 1995; Benchley et al. 1997; Alex 2000). Though this led to the creation of monumental mounds, complex earthworks, exotic artifacts widely traded, and the spread of ritual and ideology in the eastern part of the Midwest, this degree of cultural elaboration did not reach western Iowa (Alex 2000). While the Middle Woodland population of western Iowa probably increased from Early Woodland levels, it remained generally low and subsistence remained largely the same as in Archaic times, based on a mix of hunting and gathering, with some increased reliance on cultigens. There is little evidence that mound burial was widely practiced by the Middle Woodland inhabitants of the Loess Hills.<sup>15</sup> Middle Woodland components have been identified at only seven sites in the Loess Hills, three in Woodbury County, two in Fremont County, and one each in Harrison and Plymouth counties (GIS data from the OSA; Benn 1981, 1990a).<sup>16</sup>

<sup>12</sup> Circa 800 B.C.-200 B.C.

<sup>13</sup> The Benson site (13WD50) is a large, multi-component Woodland site in the Smokey Hollow drainage of Woodbury County. It was observed in 1982 in the form of deeply buried hearths, pottery, and other cultural debris visible in gully walls for a distance of 2,200 feet (Thompson and Benn 1983). Components of Late Archaic, Early Woodland, Middle Woodland, and Late Woodland age are believed to be present (Thompson 1984). Although excavations have not taken place here, the Benson site offers tremendous potential to yield information that will be important to understanding major changes in cultural adaptations to late Holocene environments (Thompson 1984). It was listed on the National Register of Historic Places in 1984.

<sup>14</sup> Circa 200 B.C.-A.D. 400 (Alex 2000).

<sup>15</sup> However, Middle Woodland ceramics have been recovered from one mound in the Terry Mound Group (13ML49) in Mills County and from excavations at a Nebraska Phase earth lodge (13ML126) that is presumed to have intruded on an earlier Middle Woodland site (Billeck 1993; Alex 2000).

<sup>16</sup> An important archeological site for understanding the Woodland stage in the Loess Hills is the Rainbow site (13PM91) near Hinton in Plymouth County. The Rainbow site was excavated in 1978 along a small Loess Hills tributary of the Floyd River (Benn 1981, 1990a). The excavation was conducted to mitigate the impact of construction of a small water impoundment dam planned by the Soil Conservation Service. After cultural deposits were observed in gully cutbanks, excavations were conducted to salvage information that would otherwise be destroyed. The site was found to contain evidence of several occupations dating from possibly as early as A.D. 100 to as late as A.D. 680 (Benn 1990a), but primarily spanning Middle Woodland into Late Woodland times (Alex 2000). The Middle Woodland occupation is judged to have occurred sometime between about A.D. 200 and A.D. 450 (Alex 2000).

During the Late Woodland period,<sup>17</sup> population continued to increase, settlements were more sedentary, cultivation of domestic plant foods intensified, and a number of technological changes occurred. These included the introduction of the bow and arrow which essentially replaced the dart and atlatl used earlier, technological refinement of pottery, and the use of pits for the storage of food (Benn 1982, 1983). Cultivated plants included squash or pumpkin, sunflower, gourd, goosefoot, marsh elder, and tobacco (Alex 2000). Burial of the dead in mounds became common and a seasonal round of gathering wild plant foods and hunting a variety of animals continued. The raising of corn intensified. Late Woodland components have been identified at 14 sites in the Loess Hills, ten in Mills County, three in Woodbury County, and one in Monona County (GIS data from the OSA; Benn 1981, 1990a).<sup>18</sup>

***The Late Prehistoric Period.*** By the advent of the Late Prehistoric period<sup>19</sup> changes transformed Late Woodland cultures into several strikingly different regional archeological complexes centered on settled village life based largely on the raising of garden crops. Widespread cultivation of corn on an intensive scale led to the development of several distinctive regional cultures whose people lived in permanent settlements and whose economy was based on a blend of corn cultivation and hunting. These included three cultures that flourished in the Loess Hills, as well as a highly organized and ultimately widely influential culture that developed in the Mississippi River valley in western Illinois during the two centuries before A.D. 1000 (Alex 2000). These changes may have been aided by the

---

The excavations yielded small quantities of squash and tobacco seeds, as well as a single corn kernel (Benn 1990a), in addition to collected native plants such as walnuts and acorns. Animal remains from the site are those of bison, deer, mollusks, and a variety of birds, fish, and small mammals, reflecting a typically diverse Woodland subsistence base. The Rainbow site inhabitants are considered representative of a network of small family-size bands that exploited a wide range of foraged plant and animal resources but which periodically or seasonally came together to maintain relations and share resources (Benn 1990a). They appear to have repeatedly occupied the bottom of small valleys, possibly to take advantage of shelter from the elements during the inclement winter months. The exchange of redundant food resources among such bands is seen as a way that vital resources were shared in times of need, such as during droughts, and served as a precursor to inter-group trading relationships among historic Plains tribes (Benn 1990a).

Information from a Middle Woodland cemetery in the Loess Hills of Harrison County, the Hanging Valley site (13HR28), has led to a differing interpretation of the relative well-being of Woodland peoples. Instead of inter-band sharing of food resources to guarantee food supplies in times of want, data from Hanging Valley suggest that a severe degree of nutritional stress was experienced by the people whose remains were excavated in 1983 (Tiffany et al. 1988). Long bones and teeth of a half dozen individuals exhibited numerous internal features that reflected repeated and sustained interruptions and inhibition of growth. This has been interpreted as due to environmental factors such as drought or cultural factors such as nearby hostile populations, or both (Tiffany et al. 1988). The contrastive ideas of 1) band aggradation and sharing of resources by Loess Hills Woodland peoples (developed from the Rainbow site data) and 2) isolation and relative destitution of those peoples because of natural or cultural causes (developed from the Hanging Valley site data) have been debated (Tiffany et al. 1989; Benn 1989) and must be resolved through future research. The skull of one of the Hanging Valley individuals exhibited cut marks suggestive of scalping, and is among the earliest known evidence of the practice of scalping in prehistoric North America (Tiffany et al. 1988; Alex 2000). The Hanging Valley site dates to between approximately A.D. 450 and A.D. 600 (Alex 2000).

<sup>17</sup> Circa A.D. 400-1200 (Alex 2000).

<sup>18</sup> The Rainbow site in Plymouth County is one of the better known early Late Woodland archeological sites in the Loess Hills, as it is also for the Middle Woodland period (Benn 1981, 1990a; Alex 2000). The Late Woodland component at the Rainbow site contained evidence of oval and circular structures defined by patterns of post holes, hearths, and interior subfloor storage pits. These were probably the remains of small structures built with wooden poles and covered with hides, bark, or reeds (Alex 2000). At Rainbow, as well as at the M.A.D. sites in Crawford County (also in western Iowa, but east of the Loess Hills), small triangular projectile points were recovered from Middle Woodland as well as early Late Woodland deposits, representing relatively early evidence for use of bows and arrows (Alex 2000). The Late Woodland component at Rainbow is believed to date in the A.D. 400-700 range (Alex 2000).

<sup>19</sup> A.D. 900-1000 through circa A.D. 1650 (Schermer et al. 1995; Alex 2000)

onset of the Neo-Atlantic climatic episode about A.D. 850, which brought warm, moist conditions to the region, ideal for the growing of crops like corn (Bryson and Baerreis 1968). The interrelationships among these several village cultures have been the subject of much speculation and debate. A long-time researcher in Woodland cultures of the Midwest, David Benn, has concisely outlined the changes that led to this transformation. Once increasing reliance on horticulture produced an increasing degree of sedentism:

...The perennial need to protect investments in crops, houses, and stored surplus leads to permanent villages and a system of defense. The crowding together of village inhabitants stimulates the enhancement of social status and individual achievement—which are expressed in exaggerated use of personal styles, exotic products, and the stockpiling of produce. Intensification of horticulture and hunting results in a proliferation of specialized tools and the reinforcement of an ideology and religion that justifies the productive system. In sum, the Plains Village adaptation can best be viewed as a *florescence* of the singular horticultural way of life initiated by Late Woodland cultures... (Benn 1983; emphasis in original).

During the Late Prehistoric period, three distinctive village complexes developed in western Iowa and are represented by archeological sites in different parts of the Loess Hills. All three (Great Oasis, Mill Creek, Nebraska Phase) were approximately coeval and their presence in the Loess Hills lasted approximately 300 years, or less, circa A.D. 1000-1300.<sup>20</sup> Villages of a later fourth complex (Oneota) did not exist in the Loess Hills, but were located nearby during the latter part of this time span and

<sup>20</sup> How long Mill Creek existed is a matter of some debate among archeologists. For many years, Mill Creek was believed to have existed for 400 to 600 years, from circa A.D. 900 to 1500 (e.g., Tiffany 1991a). Recent reassessment of the body of Mill Creek radiocarbon dates (unpublished studies by Stephen C. Lensink, cited by Alex [2000]) has resulted in a compression of this time span to about 150 years (circa A.D. 1100-1250), forcing re-evaluation of the relationship of Mill Creek with Great Oasis peoples and more distant trading partners, such as those at Cahokia near present-day St. Louis.

Cahokia was a large ceremonial and urban center that exerted marked influences on Native American cultures throughout the Midwest and through much of the Mississippi River valley. It is thought that a rigidly stratified and highly organized society ruled by an elite class dominated economic production and exchange systems over a wide area. Referred to as Mississippian culture, Cahokia itself was a city with a population estimated to range from 10,000 to 50,000 inhabitants (Tiffany 1991a; Alex 2000), the largest urban center north of Mexico. Architecture at Cahokia was dominated by monumental mounds, including Monks Mound, the largest prehistoric Native American structure in the United States. The Mississippian economy was based on intensive cultivation of maize combined with a lesser dependence on products of the hunt, much of which was presumably obtained through trade with distant cultures. Mississippian material culture was characterized by distinctive forms of pottery and other artifacts, as well as by decorative motifs suggestive of a widespread religious or ritual "cult." Some highly distinctive Mississippian artifacts such as ear spools and discoidal or "chunky" gaming stones are rarely found at Mill Creek village sites (Tiffany 1991a).

Mississippian culture affected far-flung Native American cultures between about A.D. 1050, when Cahokia began its rise to prominence, and about A.D. 1250-1300, when it went into a decline for reasons unknown (Tiffany 1991a). During its florescence, Cahokia is believed to have influenced two of the cultures that inhabited the Loess Hills and adjacent regions, the Mill Creek culture and the Nebraska Phase. However, the nature of those influences appears to have been different with respect to each complex.

Mill Creek villagers appear to have served as suppliers of bison hides and meat to Cahokia, possibly through the means of Mill Creek trading parties that descended the Missouri River (or descended the Des Moines River to the Mississippi) to Cahokia itself (Tiffany 1991a). In exchange for these commodities, which could have been obtained in quantity directly by Mill Creek hunting forays onto the Plains to the west or by trade with western neighbors, the Mill Creek villagers are believed to have received quantities of marine and freshwater shells and pottery vessels. A variety of marine and freshwater shell artifacts, including exotic "Long-Nosed God" masks that directly attest to Mississippian influence, as well as scrap pieces of worked shell, have been found on Mill Creek sites, as have Mississippian-produced ceramics and ceramics made by Mill Creek villagers in imitation of Mississippian pottery (Tiffany 1991a). In turn, the Mill Creek people are believed to have traded exotic items such as these to related village peoples living to the west in South Dakota and along the Missouri River (Tiffany 1991a).

probably had a profound effect on the Loess Hills inhabitants. These farming cultures were influenced, to greater or lesser degrees, by dramatic cultural developments centered in the Mississippi River valley near St. Louis. With the possible exception of Great Oasis, which may not have raised much corn but may have obtained it from Mill Creek neighbors, these complexes shared a basic economy that consisted of horticulture and seasonal hunting of bison and other mammals, supplemented by the gathering of wild plant foods, mussels, and fish.

The garden crops raised during Late Prehistoric times consisted principally of corn, beans, squash, and tobacco; surpluses were stored in large subsurface cache pits and were probably exchanged with other groups. The essential commonality of the subsistence base shared by the Late Prehistoric complexes of western Iowa has been viewed as an extension of subsistence practices employed by prehistoric cultures in the woodlands east of the Mississippi River, although there seems to have been some time lag involved for these cultural characteristics to reach western Iowa. Toom (1992) concludes that "the opportunity for Plains peoples to adopt sedentism and agriculture was directly linked to parallel developments in the Eastern Woodlands, developments which reached the eastern margins of the Plains at about A.D. 900." Late Prehistoric archeological cultures differed markedly in the pottery they produced, which serves as a "hallmark" to distinguish the Late Prehistoric complexes from one another. In the northern part of the Loess Hills were two complexes known as Great Oasis and Mill Creek.<sup>21</sup>

Great Oasis culture is generally believed to have developed from Late Woodland cultural antecedents, although this transition is little understood at present (Henning 1967; Henning and Henning 1978). Alex (2000) concludes that Great Oasis lasted from circa A.D. 950 to 1150, though earlier writers have judged its time span as longer, lasting to possibly as late as circa A.D. 1300 (e.g., Henning 1996). Great Oasis peoples relied less on intensive horticulture and more on a diversified hunting/gathering/horticulture economic base, much like their Late Woodland cultural antecedents, and thus have sometimes been characterized as culturally "conservative" for that reason (Anderson 1975; E. Henning 1981; Tiffany 1983). Great Oasis sites are widely distributed through the northwestern quadrant of Iowa, as well as in southwestern Minnesota, southeastern to central South Dakota, and northeastern Nebraska (Henning 1971). Alex (2000) notes that Great Oasis sites in Iowa occur primarily in two clusters, one of which centers on the Big Sioux, Little Sioux, and Floyd rivers. Within the Loess Hills, they are found only in Plymouth and Woodbury counties, but they also occur in portions of those counties that are outside of the Loess Hills. In contrast, Mill Creek sites cluster in two locales: near the junction of Broken Kettle Creek and the Big Sioux River at the western edge of the Loess Hills; and along the Little Sioux River and its tributaries to the east of the Loess Hills (Anderson 1969). Great Oasis components have been identified at 34 sites in the Loess Hills, one in Woodbury County and the rest in Plymouth County (GIS data from the OSA).

Great Oasis villages are generally located on low terraces and are often found near Mill Creek villages. The larger Great Oasis villages, such as Broken Kettle West (13PM25), were comprised of rectangular semi-subterranean house structures with long external entranceways to the southeast, much like the houses of their Mill Creek neighbors (Henning and Henning 1978). Structures may have been built of wattle and daub, with no evidence of the banking of earth on the exterior, as characterized the classic earth lodges of Plains villagers in historic times (Alex 2000). Two excavated Loess Hills Great Oasis sites of the smaller campsite variety are the Cowan site (13WD88) near Sioux

---

<sup>21</sup> The relationship between these complexes—i.e., whether one developed from the other or whether they were parallel developments—has been much debated, but certainly they coexisted for a time as separate cultures, regardless of their origins. Great Oasis is generally accepted as somehow ancestral to and also contemporary with Mill Creek (Henning and Henning 1978). Villages of these two complexes are sometimes located near one another (E. Henning 1981; Henning 1996). It has been suggested that the Great Oasis culture disappeared from Iowa or changed completely into Mill Creek culture by about A.D. 1100 (Alex 2000).



City in Woodbury County and the Williams site (13PM50) along the west branch of Perry Creek in Plymouth County. Excavations took place at the Cowan site in 1998 to mitigate the impact of highway construction on the site (Doershuk and Morrow 1999). The report on this work will be forthcoming in the Office of the State Archaeologist's *Report* series. The Williams site was damaged by bulldozer activity prior to salvage excavations being undertaken there in 1971 by personnel from the Sanford Museum and volunteers (Williams 1975).<sup>22</sup>

Only 35 sites of the Mill Creek culture have been recorded, distributed in two very localized clusters (Alex 2000). The larger cluster is along several small tributaries of the upper Little Sioux River. The smaller cluster (seven sites) occurs in Plymouth County near the juncture of the Big Sioux River and Broken Kettle Creek. Ten Mill Creek sites have been identified in the Loess Hills, nine in Plymouth County and one in Woodbury County (GIS data from the OSA). Small tributary valleys were preferred village locations, where relatively abundant timber met the villagers' needs for fuel and building materials and adequate amounts of tillable land were available (Alex 2000). The remains of ridged and mounded agricultural fields have been recorded near some of the Mill Creek village sites (Alex 2000).<sup>23</sup>

<sup>22</sup> It is not clear whether Great Oasis peoples actually grew corn or merely consumed corn obtained from Mill Creek or other peoples (E. Henning 1981; Henning 1996). Recent research at the Great Oasis Cowan site near Sioux City, however, tends to confirm their role as horticultural corn producers (Doershuk and Morrow 1999; Alex 2000), although it may be that Great Oasis corn horticulture was not as intensive as Mill Creek. Great Oasis peoples also participated in long-distance trade that resulted in marine shells from the gulf coast and freshwater *Anculosa* shells from the Ohio River valley and further south being occasionally found at Great Oasis sites (E. Henning 1981; Alex 2000). Lithic raw materials were obtained from a variety of distant sources to the west, northwest, and southeast (Alex 2000). Great Oasis villagers made pottery that was particularly distinctive and neatly decorated (Alex 2000).

Whether Great Oasis villagers coexisted with Mill Creek neighbors in a symbiotic relationship—exchanging plant and animal food and other resources—or whether Great Oasis villages were abandoned by the time that nearby Mill Creek villages were constructed cannot be determined from available radiocarbon dates. However, despite considerable past debate and speculation (e.g., Alex 1981), archeologists today generally agree that Great Oasis 1) developed from Late Woodland cultures; 2) possessed a diversified economy more typical of Late Woodland predecessors, with less reliance on maize cultivation in comparison with Mill Creek villagers; and 3) was coeval with the Mill Creek culture for much of its existence. Peaceful and perhaps symbiotic relations appear to have existed between these two cultures in the far northern part of the Loess Hills.

Investigations at two Plymouth County sites raise the possibility that Great Oasis and Mill Creek may have blended into one society before both cultures disappeared from the Loess Hills. In 1973 and 1974, researchers from the Sanford Museum at Cherokee, Iowa, and the University of Nebraska-Lincoln conducted extensive archeological survey and excavations in the Perry Creek drainage in Plymouth and northern Woodbury counties (Henning 1980, 1982, 1996; Williams 1975, 1982). The most extensive excavations during this work were conducted at the Larson site (13PM61) and the Lawrence Vondrak site (13PM62). The undated Lawrence Vondrak site yielded evidence of a palisade, presumably for defensive purposes but in a seemingly disadvantageous location at the base of a slope (Henning 1996). It is the first evidence of fortifications at a Great Oasis site. The Larson site, however, yielded abundant Great Oasis and Mill Creek artifacts, and has been interpreted as evidence for an amalgamation or "fusion" of the two cultures (Henning 1996), a conclusion that has been debated (Tiffany et al. 1998; Henning 1998a). The Larson occupation is judged to date within the period circa A.D. 1200-1300 (Henning 1996), toward the end of the occupation of the Loess Hills by Late Prehistoric cultures. If this conclusion about the amalgamation of two cultural complexes is correct, then perhaps Great Oasis and Mill Creek were at least partially merged at the time (circa A.D. 1300 or somewhat later) when Mill Creek people are believed to have left northwestern Iowa. There is a precedent in historic times for Plains Indian people of different cultural traditions and languages coming together. During the mid-nineteenth century, the Siouan-speaking Mandans and Hidatsas merged with the Caddoan-speaking Arikaras to form a single village and eventually a single society as a result of military pressure from the nomadic tribes. Perhaps something of this sort happened in the Loess Hills when some of the Mill Creek and Great Oasis peoples found themselves facing a nearby hostile Oneota population.

<sup>23</sup> Two of the village sites in the Little Sioux cluster (Phipps and Wittrock in Cherokee and O'Brien counties, respectively) have been designated as National Historic Landmarks.

Mill Creek villages were small and compact, typically consisting of rectangular semi-subterranean earth-banked houses sometimes arranged in irregular rows. Villages were situated on midden mounds of built-up soil introduced from a variety of activities such as deliberate fill importation, refuse accumulation, storage pit digging, and repeated house rebuilding (houses are believed to have required substantial rebuilding every decade or so) (Baerreis and Alex 1974; Anderson 1985b; 1986; Fishel 1996; Alex 2000). Each village contained up to perhaps 200 people (Tiffany 1991a). Later Mill Creek sites were fortified with ditches and palisades that protectively isolated them on terrace spurs (Anderson 1981, 1986; Tiffany 1991a-b). Excavations at Mill Creek villages<sup>24</sup> have yielded abundant pottery as well as bone and stone tools, and plant remains suggesting that maize horticulture was an economic mainstay of the Mill Creek peoples. In addition to the cultivars corn, beans, squash, sunflowers, goosefoot, little barley, knotweed, maygrass, and sumpweed, wild plants such as bulrush, plum, sumac, ground cherries, bearberries, walnuts, and hazelnuts were eaten (Alex 2000). Large game animals such as bison, elk, and deer were hunted, and smaller mammals such as beaver, dog, pocket gophers, and other rodents were eaten, as well as turtles and a variety of fish and birds (Alex 2000).

Mill Creek people employed a variety of ways to bury the dead, including ossuaries on hilltops and Loess Hills bluffs, burial mounds, and individual interments within villages, sometimes in emptied out storage pits (Alex 2000). A large Mill Creek cemetery was discovered in 1972 as a result of the quarrying of fill soil at the Siouxland Sand and Gravel site (13WD402) on the loess bluffs overlooking Sioux City. Over 100 single interments were observed in situ by a local avocational archeologist and salvage excavations<sup>25</sup> resulted in the recovery and reburial of the skeletal remains of at least 16 individuals (Fisher 1978; Anderson et al. 1979).

By A.D. 1250 or 1300, the Mill Creek peoples disappeared from Iowa's archeological record. Several factors could account for this, including the advent of drier climatic conditions, the depletion of essential resources such as timber, or resource competition and aggression from Oneota people who

---

<sup>24</sup> Excavations have been conducted at two villages in the Big Sioux cluster. The Broken Kettle (13PM1) site attracted the interest of local antiquarians early in the twentieth century (Stafford 1904; Powers 1910), but did not undergo professional investigation until the mid-1930s (Orr 1963). The University of Nebraska conducted extensive excavations there (as well as at the nearby Great Oasis Broken Kettle West site) in 1969, but this research has not yet been comprehensively reported (Henning 1969, 1970). More recently, the village was the location of a University of Iowa archeological field school in 1999 (Anonymous 1999). The Kimball site (13PM4), which is part of the Big Sioux cluster but lies just outside the Loess Hills on the Big Sioux River, was partially excavated by the University of Wisconsin in 1963 (Henning, ed. 1968, 1969).

Beginning in 1963 and extending into the 1970s, extensive excavations were conducted at Mill Creek village sites, and much information about Mill Creek culture is available as a result. The earliest of these investigations, starting in 1963 and conducted by researchers from the University of Wisconsin (Henning, ed. 1968, 1969), focused on defining cultural changes that may have occurred in response to changes in major climatic patterns. Mill Creek culture was believed to have spanned the transition from the warm, moist Neo-Atlantic climatic episode to the warmer, drier Pacific episode. Once considered a model of interdisciplinary investigation, later research has questioned the link between cultural change and climatic change that was postulated as a result of this research, instead suggesting cultural explanations for some of the changes previously attributed to climatic causes (Alex 2000).

<sup>25</sup> Among the artifacts recovered were several that identified the cemetery as being of Mill Creek origin and reflected widespread trading connections. These included a typical Mill Creek rimsherd, a Long-Nosed God shell mask (one of two known from Mill Creek proveniences), a cut wolf mandible (probably part of a mask ritual paraphernalia), and numerous *Anculosa*, *Conus*, and *Busycon* shell beads (Anderson et al. 1979; Duncan and Diaz-Granados 2000). *Anculosa* is a freshwater riverine shell from the Ohio River valley and southward, while *Conus* and *Busycon* are marine species, probably from the Gulf or East coasts. A fragment of distinctive pottery was identified as originating from the Caddoan area of Texas and western Arkansas, evidence of far-reaching trading connections, possibly through Mississippian intermediaries (Anderson and Tiffany 1987; Alex 2000). After extended negotiations and a change in the Iowa human burial law, removal of soil from the cemetery site was halted in 1978 and the surviving portion of the cemetery was preserved (Anderson et al. 1979). Extended and flexed single interments, as well as secondary (defleshed) and cremation burials, are known from a cemetery near the Broken Kettle Mill Creek site (Banks and Lilly 1968).

had arrived in northwestern Iowa by that time. Quite likely the disappearance of Mill Creek people was caused by some combination of these factors (Alex 2000). The absence of Mill Creek ceramics at Oneota sites and the absence of Oneota ceramics at Mill Creek sites, of coeval age, suggests that these peoples were not on friendly terms. There is little evidence that Mill Creek villages were destroyed and their inhabitants killed, and it has been suggested that the Mill Creek people moved westward into present-day South Dakota and joined people with a kindred lifestyle and material culture who were already settled along the James and Missouri rivers. Archeologists call these people the Middle Missouri Tradition and regard the Mill Creek culture as part of that broader cultural complex.

The third Late Prehistoric village complex that existed in the Loess Hills is variously called the Nebraska Phase<sup>26</sup> or the Glenwood Culture, because most of the known sites in Iowa cluster tightly on the Keg Creek and Pony Creek drainages and adjacent areas near Glenwood in Mills County. This nine-by-four mile area is known to archeologists as the Glenwood "locality" (Anderson 1961).<sup>27</sup> It has long been studied by avocational and professional archeologists, and a great deal of information about the prehistory of that locality is available as a result.<sup>28</sup>

Nebraska Phase villages were established in the Glenwood locality perhaps as early as circa A.D. 1050 (Alex 2000). The villagers practiced an economy based on intensive production of corn, beans, and squash, combined with the hunting of deer and smaller mammals, fishing, and gathering of wild plant foods and mollusks (Green 1990a; Asch and Green 1992a-b). Bison is relatively rare at Nebraska Phase sites in the Glenwood locality, suggesting that the villagers' economy focused more

<sup>26</sup> While the names "Nebraska Phase" and "Glenwood Culture" may be used interchangeably, the archaeological complex was initially called the Nebraska Phase because most sites located prior to 1920 were located west of the Missouri River (Gradwohl 1994).

<sup>27</sup> If the Loess Hills can be truly said to have a "critical resource area" of archeological resources, the Glenwood locality is that place. Two hundred thirty nine Nebraska Phase archeological sites have been recorded in the Loess Hills within Mills County, most of them in the Glenwood area (GIS data from the OSA). In contrast, only 18 Nebraska Phase sites have been recorded in the Loess Hills outside of Mills County (10 in Fremont County, five in Pottawattamie, two in Harrison, and one in Plymouth), and 27 more outside the Loess Hills in the seven-county study area (16 of them in Mills County) (GIS data from the OSA). The correlation of Nebraska Phase sites with the Loess Hills in Mills County is striking--90% of the 284 recorded Nebraska Phase sites in Iowa occur in the Loess Hills and nearly 93% of the Nebraska Phase sites known to exist in the Loess Hills are in Mills County alone.

This concentration of Nebraska Phase sites in such a small area in part reflects more than 120 years of intense interest in the archeology of the Glenwood locality on the part of avocational and professional archeologists alike. About 130 lodge sites have been completely or partially excavated through past efforts of avocational and professional investigators (Billeck 1993). The concentration of Nebraska Phase occupation in the Glenwood locality was a very real phenomenon in contrast to the distribution of Nebraska Phase sites located outside the locality. As Lynn Alex, the author of the latest synthesis of Iowa archeology (2000) has noted: "The concentration of Nebraska Phase sites in Mills County is not just a reflection of the visibility of sites there or the more intense investigation of the area. The Glenwood locality in Mills County appears to have been intentionally chosen by Nebraska Phase people... ."

The Nebraska Phase is not restricted to the Glenwood locality, but is widespread to the west. Sites of this complex are scattered along the bluffs on the west side of the Missouri River from southeastern to northeastern Nebraska and for nearly fifty miles up the Platte River from its mouth. Sites are also known in the Missouri River bluffs of northwestern Missouri and probably occur across the river in northeastern Kansas. The Nebraska Phase is one taxonomic unit of a broader Plains Village cultural entity called the Central Plains Tradition. Western Iowa represents the eastern limit of Central Plains sites, and the Glenwood locality represents the densest known concentration of Nebraska Phase sites.

<sup>28</sup> Extensive archeological collections and notes have been made by avocational archeologists since the late nineteenth century (Dean 1883; Proudfit 1881a-b, 1886a-b; Rowe 1922, 1952a-b, 1960, 1968; Davis 1958, 1959; Davis and Rowe 1960), and extensive excavations were undertaken there in 1938 by the Iowa Archaeological Survey (Orr 1938). Between 1956 and 1993, analyses of Glenwood area data have resulted in at least six masters theses (Ives 1956, 1962; Anderson 1960, 1961; Zimmerman 1971; Johnson 1972; Fulmer 1974; Bardwell 1981), four doctoral dissertations (Boylan 1973; Zimmerman 1977; Hotopp 1978a; Billeck 1993), and one undergraduate honors thesis (Tiffany 1971), a remarkable contribution to archeological knowledge of one specific locality.

on the growing of corn and other garden crops and the hunting of smaller woodland animals from the mixed woodland and prairie habitat of the Loess Hills. The houses of Nebraska Phase villagers were generally square to rectangular with rounded corners and a long extended entryway. Floors were dug a foot or so into the ground. Four large support posts surrounded a central fire hearth, smaller posts lined the walls and entryway, and rafters presumably supported some sort of covering, against which earth was laid in the fashion of the earth lodge dwellings of historic Plains village tribes.

It has been suggested that Nebraska Phase horticulture was of a swidden, or "slash and burn," nature (Blakeslee 1990; Alex 2000), meaning that untilled land would be cleared of trees to create garden plots or fields. When fields became infertile after several years of intensive use, the farmers would clear areas in other locations and start the process over again, building new domiciles in the course, perhaps sometimes on fallow fields. It has been noted that larger Nebraska Phase houses occur predominantly in upland settings further from timbered areas and smaller dwellings tend to occur in lower topographic settings closer to areas suitable for fields. The large lodges have been interpreted as structures built to house multiple families while fields are initially cleared. After the fields have been cleared, it has been postulated that families dispersed and built single-family dwellings closer to their fields (Blakeslee 1990). This repeated pattern of building houses in different locations would eventually literally dot the landscape with the remains of structures.<sup>29</sup>

With households being occupied for only relatively short periods of time and then moved to new locations every few years, the archeological remains of individual lodge structures constitute virtual "time capsules" of information. When excavated and interpreted by archeologists, the debris left behind in these short-term habitations provides a fascinating record of activities performed within the houses, the diet of their occupants, trade with neighboring cultures, and other aspects of the daily life of the villagers.

The settlement pattern within the Glenwood locality is very different from that in the area occupied by Mill Creek and Great Oasis peoples in the Loess Hills to the north. Sites in the Glenwood locality are typically the remains of individual house structures, presumably earth and timber lodges that housed economically self-sufficient extended families, or in the instance of the larger structures, multiple families (Blakeslee 1990; Billeck 1993). In the past, small clusters of lodges, two to seven in number, have been interpreted as hamlets occupied by several family groups at the same time (Anderson 1961), but the contemporaneity of the lodges comprising such apparent hamlets has not been demonstrated. Consequently, it is currently believed that lodges were moved every few years, on the order of a decade or so. When their condition deteriorated, families would build new lodges nearby. Over the course of several such moves in a small area such as a valley and adjacent slopes and bluffs, remains would be left that sometimes give the appearance of small lodge clusters or villages to archeologists viewing the pattern of ruined structures from a perspective of several hundred years later. Actual hamlets or villages in the Glenwood locality are rare, though Perry (1998) has recently suggested that loose aggregates of lodges strung out between the foot of hill slopes and terrace or floodplain fields, "within calling distance" of one another, may have been occupied by people who interacted on a daily basis and so may actually constitute communities or "villages." Perhaps the largest such village, comprised of up to 15 lodges, existed at the Kullbom site (13ML10) in a small valley north of Pony Creek that opens to the Missouri River floodplain (Alex 2000).

---

<sup>29</sup> It is important to note that many Nebraska Phase lodge sites are not visible on the surface of the ground. During construction of Highway 34, 14 lodges were encountered and excavated, but none of them had any surface expression; all were found during the course of construction work (Hotopp 1978a-b; Billeck 1993; Perry 1998). Consequently, many more Nebraska Phase sites undoubtedly exist in the Glenwood locality than are recorded at present.

Nebraska Phase lodges in the Glenwood locality were located in many different topographic situations, including high ground such as ridge tops and hilltops, side slopes, foot slopes, and valley terraces. Consequently, the prehistoric landscape of the Glenwood locality would literally have been dotted with small habitations interspersed among horticultural fields and timbered glades.<sup>30</sup> Why the Glenwood locality so attracted Nebraska Phase people is not known with certainty, although it has been suggested that the locality was relatively heavily timbered in contrast to the more northerly portion of the Loess Hills (Hotopp 1982). Timber would have provided essential fuel and construction material to the villagers. Timber, stone for making tools, and arable land have been suggested as the principal attractions of the Glenwood locality to Nebraska Phase villagers (Blakeslee 1990; Alex 2000). Whether the strategic position of the Glenwood locality opposite the mouth of the Platte River played any part in drawing Nebraska Phase people to the locality is unknown (Alex 2000).

Nebraska Phase villagers in the Glenwood locality appear to have had a peaceful relationship with the Mississippian and Oneota cultures. A few Oneota-like potsherds have been found at Nebraska Phase sites, suggesting friendly relations between the two groups, unlike the situation of the Mill Creek people. Nebraska Phase contact with Mississippians appears to have been indirect, unlike the direct trading relationship that their Mill Creek neighbors had with Cahokia. Their trade for Mississippian goods was probably conducted through neighboring peoples to the south along the Missouri River.

Why the Nebraska Phase people left the Glenwood locality is not known, but they, like their Mill Creek and Great Oasis neighbors, disappeared from the archeological record by about A.D. 1300 (Alex 2000). Other Central Plains Tradition people survived longer in other locales west of the Missouri River. Central Plains Tradition villagers are believed to have eventually migrated northward along the Missouri into present-day South Dakota, where they interacted, possibly in a conflict relationship, with village people of the Middle Missouri Tradition. Central Plains Tradition people may be the ancestors of the historic Caddoan-speaking Arikaras and Pawnees (Alex 2000).

A fourth village culture which is at least partially contemporaneous with the Plains Village complexes found in the Loess Hills is called the Oneota tradition. Oneota sites have been found throughout all or a part of 10 states (Alex 2000). Although Oneota is virtually absent from the Loess Hills (only one poorly known and questionable site is recorded in each of the Loess Hills parts of Plymouth and Woodbury counties GIS data from the OSA) large Oneota villages existed nearby.<sup>31</sup> Hostile Oneota interaction and resource competition with the Mill Creek villagers is believed to be one of the reasons for the withdrawal of the Mill Creek people from northwestern Iowa (Anderson 1981, 1987; Henning

<sup>30</sup> This does not necessarily mean that the Nebraska Phase population within the Glenwood locality was large, however. The most recent estimate of the total number of Nebraska Phase lodge sites in the Glenwood locality—including those yet to be discovered as well as those previously recorded—is 500 to 1,000 (Billeck 1993). Presuming that 500 lodges was the total that existed during the 150 to 250 years during which the locality was home to Nebraska Phase people and that individual lodges would be relocated and rebuilt approximately every 10 years, Billeck (1993) estimates that the total Nebraska Phase population in the locality at any given time was in the range of 366 to 495 individuals and that only 20 to 33 lodges would have been occupied at any one time. Another estimate, based on computer simulation studies, places the Glenwood locality Nebraska Phase population as low as about 100 persons at any one time (Zimmerman 1977).

<sup>31</sup> Although Oneota sites are almost unknown in the Loess Hills, Oneota sites exist nearby to the east and west. Dixon has already been mentioned. Correctionville in Woodbury County is another large Oneota village not far from the Loess Hills and may date to circa A.D. 1300 and possibly earlier (Henning 1996; Fishel 1999). In all, eight Oneota sites have been recorded to the east of the Loess Hills along the Little Sioux River in Woodbury County (GIS data from the OSA). The Leary site across the Missouri River in Richardson County, Nebraska, may date as early as the thirteenth century, and an early Oneota component exists along the Platte River near Ashland in Saunders County, Nebraska, about 25 miles from the mouth of that river (Logan 1996; Henning 1996, 1998b; John R. Bozell, personal communication, to Tom Thiessen, June 9, 2000). The Oneota people who lived at these sites may have interacted with the Loess Hills Late Prehistoric inhabitants (particularly the Nebraska Phase people at Glenwood) in different ways, possibly at the time of a widespread climatic change that may have made it more difficult for these farming peoples to survive.

1998b). Like the Plains Village cultures, Oneota is thought to have developed about A.D. 900 or 1000, although there is no evidence for Oneota presence in northwestern Iowa that early. The Dixon Oneota village (13WD8), located along the Little Sioux River in Woodbury County to the east of the Loess Hills, dates to the approximate period A.D. 1300 to 1440 and is the earliest Oneota occupation yet known in northwestern Iowa (Harvey 1979; Henning 1998b; Fishel 1999). Originally thought to have been an outgrowth of Mississippian culture (Griffin 1946), the beginnings of the Oneota tradition date as early as the beginning of Mississippian culture, which would appear to rule out that possibility (Brown 1982; Tiffany 1991b).

At about A.D. 1200 or 1250 the Pacific climatic episode began and eventually affected much of the vast Plains region for the next 200 years (Bryson and Baerreis 1968; Anderson 1981). This change resulted in a warmer, drier climate than the preceding Neo-Atlantic climatic episode, which had presented warm, moist conditions optimal for the growing of corn and other native garden crops (Bryson and Baerreis 1968). This change to a drier climate may also have induced large bison herds from the Plains to penetrate further eastward into the Prairie Peninsula in search of more adequate forage. This could have resulted in resource competition between the Mill Creek villagers and the Oneota villagers that led to warfare between the two groups. As Anderson (1981) has concluded:

...It appears that the Oneota, with their pattern of periodic movement and subsequent reoccupation of sites coupled with an increased emphasis on hunting (and raiding?) had a more viable and adaptable culture pattern than the Mill Creek people with their tightly knit, horticulturally based hamlets... .

Possibly the Mill Creek withdrawal or disappearance from the Loess Hills and western Iowa in general was due to a combination of Oneota hostility, worsened climatic conditions for horticulture, and local resource (e.g., timber) depletion through use. The decline of Cahokia and its far-flung trade network, which occurred at about the same time as the other changes, may also have been a factor (Anderson 1986, 1987).

By about A.D. 1300 the Mill Creek villagers are thought to have moved westward into South Dakota, where they were absorbed by other culturally related Plains Village peoples. Ultimately they may have emerged into recorded history as the Mandan or Hidatsa people, Siouan-speaking tribes that flourished along the Missouri River in present-day North Dakota, although other historic tribes have been suggested as their descendants as well (Ives 1962; Anderson 1969; Henning and Henning 1982). Great Oasis people also seem to have disappeared from the Loess Hills and adjacent region by about A.D. 1300, probably also due to Oneota resource competition and hostility, and perhaps climatic changes as well.

The relationship between the Oneota and the Nebraska Phase villagers of the Glenwood locality appears to have been of a different nature than that between the Oneota and Mill Creek peoples (Billeck 1993; Henning 1998b). Nebraska Phase sites at Glenwood have yielded Oneota-like pottery. If not obtained directly through trade with Oneota groups, this pottery was made in imitation of Oneota ceramics, probably after peaceful contacts between the two peoples.

By circa A.D. 1300, the Nebraska Phase folk--a farming people heavily dependent on maize horticulture--also disappeared from Iowa. In the absence of evidence of a hostile relationship with Oneota peoples, this abandonment of the Loess Hills in general and the Glenwood locality in particular could have been due to the advent of the Pacific climatic episode which may have brought sustained drought to the region.<sup>32</sup>

---

<sup>32</sup> Oneota peoples, in contrast, persisted long after the disappearance of the village complexes from the Loess Hills. Although Oneota people do not appear to have lived in the Loess Hills at any time, they were widespread elsewhere during

**Early Contact.** Whatever unknown circumstances caused the elimination of the Great Oasis, Mill Creek, and Nebraska Phase peoples from the Loess Hills in the 14<sup>th</sup> century, the effect was lasting. For more than three centuries, the Loess Hills were virtually devoid of human activity. Protohistoric<sup>33</sup> evidence indicates that by the mid-17<sup>th</sup> century occasional use of the Loess Hills, now in contact with the early French fur traders, had recurred. Although none of them have been studied thoroughly, four Native American sites of the protohistoric period have been recorded in western Iowa. One is in the Loess Hills within Harrison County; the others are located east of the Loess Hills in Woodbury, Harrison, and Fremont counties (GSI data from the OSA).

A French trader named LeSeuer heralded the beginning of the historic period in 1701 by creating the first documentary record of human activity in western Iowa, a description of an Ioway village just east of the Loess Hills near Spirit Lake (Mutel and Swander 1994). Other Ioway sites during the early historic period are known, including one in the Loess Hills in Pottawattamie County<sup>34</sup> (GIS data from the OSA). By 1877 the Ioways had moved eastward to an area along the Des Moines River, but they continued to roam across the region until a series of treaties increasingly restricted their movement, culminating in their relocation west of the Missouri River in 1832 (Mutel 1989a). The Otos apparently shadowed the Ioways for a time, then established themselves along the Platte River in Nebraska about 1700. The Missouriias occupied the southernmost portion of the Loess Hills until they joined the Otos along the Platte River.<sup>35</sup> The Omahas once had a large settlement along the Big Sioux River, but they also resettled in Nebraska. The Dakota Sioux frequently traveled from their villages in southern Minnesota to hunt in the Loess Hills (Blaine 1979; and Mutel 1989a).

French fur traders and missionaries were the first Euro-Americans to discover the Loess Hills, claiming the region for their mother country. Their footprint on the land was light. The rivers provided the initial access for the traders and priests, and later for more substantial numbers of settlers. Further inland, fur traders followed the Indian trails. In the northern Loess Hills, these paths tended to follow the ridge tops; farther south, they nestled in the valleys.<sup>36</sup>

Following their loss of the Seven Years War in 1763, the French transferred their claim to Spain. The Spanish returned the area to France in 1800. France sold the area to the United States in 1803 as part of the Louisiana Purchase. The following year, President Thomas Jefferson sent Meriwether Lewis

---

the centuries that followed A.D. 1300 and ultimately emerged into recorded history as a number of different cultural groups, including the Winnebagos, Ioways, Otos, Omahas, Poncas, and others for which the linkage to Oneota forebears is less well known (Alex 2000).

<sup>33</sup> "Protohistoric" is a term used by archeologists to denote sites where small quantities of Euro-American trade artifacts have been found, but for which no written documentation exists. Protohistoric time immediately follows the first direct or indirect contact with Euro-American culture but precedes the advent of the historic period for which a documentary record exists.

<sup>34</sup> The Ioways are known to have occupied a village below the Loess Hills bluff line near present-day Council Bluffs before Lewis and Clark passed by in 1804.

<sup>35</sup> The council of the Otos and Missouriias with Lewis and Clark on August 3, 1804, later gave its name to the city of Council Bluffs (Mutel 1989b).

<sup>36</sup> Euro-Americans later used the same routes as wagon roads, and eventually they were developed as highways, such as Highway 75 from Council Bluffs to Big Sioux River, and another road in Woodbury County which used approximately the same trace as Highway 141 (Rogers 1990; and Lindgren n.d.). The Sioux City Rock River Road northwest of Sioux City was initially an Indian trail (Rogers 1990). By the late 1800s many roads were realigned "where technology would permit, most often on section or quarter-section lines" (Bonney 1994), but most roads within the hills continued to follow the historic paths.

and William Clark to explore the new territory. The expedition spent much of July and August 1804 traveling the portion of the Missouri River adjacent to the Loess Hills, exploring, hunting, and documenting their beauty and bounty.<sup>37</sup>

Government agents and traders followed. Manuel Lisa established the first trading post, Fort Lisa, on the western side of the Missouri in 1809. In 1819 the government built a military outpost, Fort Atkinson, just north of what would become Omaha; the post was operational for eight years. With its complement of 1,000 men, Fort Atkinson was the largest and westernmost military fort of its day (Mutel 1989a).

Gradually more traders entered the region. In 1824 a fur trader by the name of Hart built a post on the bluffs above Mynster Spring; that post was within the current confines of Council Bluffs. The area was known as “La Côte d’Hart” or “Hart’s Bluffs.” In 1827 American Fur Company trader Frank Guittar established another post “in the timber at the foot of the bluffs” on what is now Broadway in Council Bluffs (Andreas 1875; and Tostevin 1870).

In 1833 the U.S. government relocated the Potowatomis,<sup>38</sup> approximately 2,000 in number, from Illinois to southwest Iowa. The largest village was near modern Council Bluffs, with smaller villages farther south. The Potowatomis lived primarily by hunting the game-laden Loess Hills, gathering native plants and planting small gardens. Periods of poor hunting and attacks by their northern Siouan neighbors resulted in hard times. Drunkenness encouraged by the white traders did not help (Mutel 1989a).

The first permanent white settler of the region was Major Stephen Cooper, an Indian agent who settled a farmstead four miles southwest of modern Sidney in 1836. Similarly, the first Euro-American settlers in Pottawattamie County were David Hardin, a farmer, and Stutely Wicks, a miller, who came in 1838 on behest of the federal government to train the area Indians in their trades (Dodge 1932<sup>39</sup> and Tostevin 1870). That same year, an outbreak of cholera decimated native tribes in the area (Van der Zee 1913). Other white settlers trickled into the Loess Hills area in the late 1830s and early 1840s.

The Army established Camp Kearney on the plateau of a steep bluff overlooking present-day Council Bluffs to protect the traders and maintain peace among the Indians in 1839 (Andreas 1875; Babbitt

---

<sup>37</sup> Sergeant Charles Floyd died, apparently from an attack of appendicitis, while the expedition was traveling just south of the Missouri’s juncture with the Big Sioux River. Floyd was the expedition’s only fatality, and the first United States soldier to die west of the Mississippi River. Lewis and Clark buried Floyd’s remains high above the Missouri both to protect the burial from flood damage and to provide a landmark by which subsequent river travelers could fix their location. Years later, the wooden cross erected by Clark, together with some of Floyd’s remains, began to slough from the face of the bluff. The sergeant’s body was reburied slightly inland, and a substantial monument was constructed to mark the grave in 1901. The 100-foot tall Kettle River sandstone obelisk overlooking the Missouri River valley was the first property to be designated as a National Historic Landmark under the authority of the Historic Sites Act. The monument is publicly owned and available to the public.

<sup>38</sup> Originally from southern Michigan, the Potowatomis were forced to move several times, first to Ohio, then Illinois, on to Iowa, and finally Kansas and Oklahoma. Waubonsie, Chief of the Potowatomis, was born in Ohio and was forced to move with his tribe to northern Illinois. In 1833, the Potowatomis ceded their lands east of the Mississippi River in exchange for an area in southwestern Iowa. The tribe was moved again, this time to an area between modern Sidney and Glenwood. When the Iowa/Missouri border question was settled, the Potowatomis south of the boundary were relocated out of Missouri into Mills and Fremont Counties in western Iowa (Blackburn personal communication; Mutel 1989b). When Iowa’s bid for statehood required the cession of all lands held by Native Americans in 1846, Waubonsie negotiated a two-year reprieve for his people, and permission for the aging Chief to remain in Iowa. Waubonsie’s gravesite in Lyons Township, Mills County is privately owned and unavailable to the public.

<sup>39</sup> Dodge incorrectly fixed the date at 1828.



1925; and Bonney 1986). In 1842 the likelihood of war between the Sioux and the United Tribes<sup>40</sup> heightened, and the federal government responded by building another post, Fort Croghan, between the mouths of the Boyer and Mosquito rivers (also now Council Bluffs). Apparently the tension among the native tribes lessened a year later; in 1943 the government gave Fort Croghan to Father Pierre-Jean deSmet for the purpose of establishing a mission among the Potowatomis (Bonney 1986).

Although the Missouri Valley was just opening to settlement in the late 1830s, the Mississippi Valley was densely populated by this time. When Iowa Territory was separated from Wisconsin Territory on July 4, 1838, it included all of present Iowa and parts of North Dakota, South Dakota, and Minnesota. Due to heavy settlement in the eastern half of the territory, it already met the population requirement and immediately established a territorial legislature (Schweider 1996). Iowa Territory moved quickly to meet the other requirements for statehood.<sup>41</sup>

The first migrants came to the southern portion of the Loess Hills (what would become Fremont County) by way of the Missouri River. Thinking they were still in the State of Missouri, some brought slaves.<sup>42</sup> The early towns were established along the transportation routes, along the Missouri River at the base of the bluffs, or in the valleys of the Missouri's tributaries. Towns frequently developed at former fur trading or military forts. For example, Hamburg in Fremont County was built on the site where Augustus Borchert started trading with area natives in 1847. The first historic structure in what is now Council Bluffs was an American fur trading post established there in 1824. Sioux City, too, was built upon the location of Brughier's old post.

On March 30, 1845, Congress authorized the State of Iowa; this authorization included a western boundary 40 miles west of Des Moines, and excluded the Loess Hills (Marks 1904). By the Treaty of June 5, 1846, the Potowatomis relinquished their claim to land in Iowa, and were removed to Kansas (Andreas 1875).<sup>43</sup> Five days after the treaty was signed, the Territorial Legislature proposed new boundaries extending to the Missouri River on the west and the St. Peter River (now in Minnesota) on the north. On August 4, 1845, Congress fixed the current boundaries of the state. A close majority ratified the proposal, and Iowa was admitted to the Union on December 28, 1846 (Marks 1904).

On the day the Great Father and Chief Waubonsie signed the treaty by which the Potowatomis relinquished their Iowa lands, the first group of Mormons made their first camps along the banks of the Missouri River. This signaled a major change in human occupation and use of the Hills.

<sup>40</sup> Primarily Potowatomis, together with a small number of Chippewas and Ottawas.

<sup>41</sup> The Northwest Ordinance of 1787 established procedures for settling new territory: Although the Ordinance required fair treatment of Native Americans under territoriality, Natives were to relinquish claim to lands before an area could be settled. After a government survey, the lands were available for purchase by Euro-American settlers. Congress appointed a territorial governor. When the adult male population reached 5,000 in number, the territory could choose a legislature and send a non-voting delegate to Congress. Finally, the territory could apply for admission into the Union when the total population reached 60,000.

Contrary to the Northwest Ordinance, Euro-Americans entered western Iowa in great numbers before the requirements for the Indian cession of land and the official surveys could be met. In 1841, the U.S. Congress passed the Pre-Emption Act, allowing squatters the opportunity to gain title to the lands they occupied once the survey requirements were met (Sheese 1989).

<sup>42</sup> At the time, Missouri claimed that its northern boundary was 10 miles to the north of its current boundary, and considered the disputed area open to slavery. When the Supreme Court settled the boundary question in 1849, most slaveholders in the disputed area moved south (Bonney 1986).

<sup>43</sup> The Potowatomis reserved the right to remain until 1848 (Andreas 1875).

**The Mormons.** Joseph Smith established the Church of Christ,<sup>44</sup> on April 6, 1830, in Fayette, New York. Smith suffered his first arrest for his religious teachings there the following year. He left New York and established colonies of his followers, or “Saints,” in Kirtland, Ohio, and Independence, Missouri. Religious tensions forced them to leave both states in 1838. The situation in Missouri was particularly intense; Governor Lillburn Boggs issued an order requiring that the Mormons be “exterminated or driven from the state if necessary.” Hostilities erupted at Crooked River and at Haun’s Mill. Hoping to avoid further bloodshed, several Mormon leaders, including Joseph Smith and his brother, Hiram, turned themselves in. They were imprisoned in Liberty, Missouri. Their followers searched frantically for a new home (Hill 1996).

In February 1839, Isaac Galland inquired on behalf of the Mormon Church whether Mormons would be allowed to settle in Iowa. Appalled by Missouri’s mistreatment of the Mormons, Iowa Governor Robert Lucas replied that, as U.S. citizens, they would enjoy all the rights thereof in his territory. The first Mormon settlement in Iowa was in the southeast corner along the Mississippi River. At the same time they purchased part of an existing settlement across the Mississippi in Illinois and changed its name from Commerce to “Nauvoo,” which means “beautiful place.” Upon his release<sup>45</sup> from the Liberty jail, Joseph Smith settled in Nauvoo and declared it the “seat” of the Mormon Church (Bloomer 1871a).

The Church sent Brigham Young, H.C. Kimball, Orson Pratt and Perly Pratt to London as missionaries. Thereafter, many converts came from the British Isles, Scandinavia,<sup>46</sup> and other countries to settle in Nauvoo (Bloomer 1871a; and Hill 1996). By 1844 the once-sleepy town of Commerce had become the bustling Nauvoo with 20,000 residents, mostly Mormon. The population boom signaled a period of unprecedented prosperity. Because Mormons were likely to look within their religious community for goods and services, the gentiles in the community did not share that prosperity. The Gentiles resented the disparity, and tensions mounted.

Smith’s 1843 revelation allowing polygamy fueled the anti-Mormon sentiments. In June of 1844, Joseph and Hiram Smith were ordered to report to Carthage, Missouri. Warned not to go, Joseph Smith replied that he was not afraid to die, and predicted: “I am going like a lamb to the slaughter, but I am calm as the summer morning. I shall die innocent, and it shall be said of me: ‘He was murdered in cold blood.’” True to prediction, the Smiths were shot and killed by a Carthage mob on July 27, 1844 (Bloomer 1871a; and Hill 1996). The Church of Jesus Christ of Latter-Day Saints elected Brigham Young to succeed Smith as their leader.

In September 1845 the residents of Quincy, Illinois, passed a resolution ordering the Mormons out of that state. The Saints asked for and received permission to stay until Spring so that they might travel successfully. The migration began in February, and by May 1846 approximately 16,000 Mormons had passed from Illinois to Iowa. The last were forcibly removed from Nauvoo in September (Bloomer 1871a). The Mormons began what would be their final trek to Zion, the Great Salt Lake Valley in the West.<sup>47</sup>

---

<sup>44</sup> The faith was renamed the Church of Jesus Christ of Latter-day Saints eight years later (Hill 1996).

<sup>45</sup> William Hill called it an “escape.” See Hill 1996.

<sup>46</sup> Many Danes, upon conversion to the Church of Jesus Christ of Latter-Day Saints (Mormonism), came to Iowa in the 1850s and ‘60s. Others came to Iowa as railroad workers. The majority of Danes settled in southwestern Iowa. The Danish community is centered in Elk Horn, Shelby County (Schweider 1996).

<sup>47</sup> Thus the motivation for establishment of the Mormon Trail was religious rather than economic, a major distinction from other trails of westward expansion.

Travelers gathered in groups of “fifties”—so called for the number of adult males in each group. Initially they tried different routes toward the west; the eastern portion of the trail across Iowa was more of a “braid” than a single path. As they journeyed, the Mormons set up camps and permanent settlements to accommodate their own needs and those of subsequent travelers. The first semi-permanent camp was Garden Grove, established in April in Decatur County, Iowa, where they cleared land, planted crops, and even built log homes for later emigrants. The following month they made another semi-permanent camp at Mount Pisgah in Union County, where they planted 1,000 acres and built houses, public buildings, and a church. The Mount Pisgah settlement remained until 1852 (Decision Data, Inc., and Tallgrass Historians, L.C. 1998b).

In western Iowa the trail followed the ridges of the loess bluffs. On June of 1846,<sup>48</sup> the first group stopped for the night at a site on Mosquito Creek that then overlooked the Missouri River. The following day, they continued to a spot just north of Peter Sarpy’s trading post.<sup>49</sup> Noting the unfavorable swamp-like conditions at the Missouri River camp, the group returned to Mosquito Creek and made their camp where Pony Creek empties into the Mosquito<sup>50</sup> (Decision Data, Inc., and Tallgrass Historians, L.C. 1998b). This third settlement, which proved permanent, was called Kanesville<sup>51</sup> (later Council Bluffs).

Setting up their temporary headquarters on a plateau overlooking the river, the Saints camped throughout the area’s hills and valleys ...

... locating themselves among the groves, and along the numerous beautiful streams of clear, pure, water [sic] that traverse western Iowa. The timber covering the bluffs and skirting the water courses, hitherto frequented only by the Indian, the elk, and deer, was ... cut down could not be secured, holes and caves were dug in the hillsides, for the purpose of securing protection from the keen wind [sic] (Bloomer 1871b) and converted into log cabins for the accommodation of the newcomers; and where these **THIS JUST ENDS**

In August, Brigham Young and others led a portion of the group to the west side of the Missouri River, establishing “Winter Quarters” in what became Florence, Nebraska. The following Spring, Young led a small part of the Mormon contingency on to the valley of the Great Salt Lake in what would become Utah. The majority of the Mormons remained in the Missouri River valley and planted corn and other crops to provide for themselves and subsequent travelers (Bloomer 1871a).

In June of 1848 the second great wave moved to Zion. Those who remained in western Iowa were concentrated around Pigeon Creek and the Nishnabotna River. Using the 1839 army outpost as their center point, Mormon leaders constructed a church and their own residences nearby. They established a post office, calling the town Kanesville. The Mormon settlers built a large building on Harmony

<sup>48</sup> William Hill placed the date as June 5, 1846; Decision Data’s report said it was June 13; and Dexter Bloomer said July 1.

<sup>49</sup> Fur trader Peter Sarpy camped at the feet of the bluffs in Pottawattamie County (Bloomer 1871b). Due to subsequent shifts in the Missouri River channel, the Sarpy post and Missouri River Camp are now on the Nebraska side of the river.

<sup>50</sup> Currently in an urban area, the Mosquito Creek Camp No. 2 was approximately 3/8 mile north of the modern Iowa School for the Deaf campus (Decision Data, Inc., and Tallgrass Historians, L.C. 1998b).

<sup>51</sup> The settlement was briefly known as “Miller’s Hollow” in honor of Henry Miller, a prominent Mormon who built a log cabin and a general store at the camp. Shortly thereafter, the town was renamed “Kanesville” (Negus 1971). Kanesville would probably have been temporary, too, had it not been designated the Pottawattamie County seat and a major outfitting center for other westbound travelers. Blacksmith shops, ferry operations, construction companies and (perhaps most importantly) a Government Land Office were established there, filling needs that outlasted the Mormon migration (Decision Data, Inc., and Tallgrass Historians, L.C. 1998b; and Bonney 1994).

Street, which was used for both religious and secular purposes. On Hyde Street they built a 2-story structure that served first as a school and later a courthouse. Later they added a “mammoth tabernacle” large enough to seat 11,000. The Mormons built another large church about seven miles north of Kanesville along Pigeon Creek. Orson Hyde initiated the first newspaper in western Iowa, *The Frontier Guard*, in 1848. *The Bugle*, also a Mormon paper, was started in 1850 (Bloomer 1871a).

The entire Mormon community was hard-hit by a cholera epidemic in 1849-50. With few physicians and little medication to fight the scourge, hundreds were buried on a high bluff overlooking the Missouri River.<sup>52</sup> In 1850 when Pottawattamie County was separated from Monroe County, the census at Kanesville recorded 7,828 residents<sup>53</sup> (Bloomer 1871a).

From 1848-53, the Mormons were the predominant occupants of Pottawattamie and Mills Counties. However, they were not the only occupants, largely because their efforts to ensure safe passage of the Saints to Zion resulted in developments that were advantageous to other westward-bound migrants. The Mormon Trail was unusual among the west-bound trails in that it was actually utilized to travel both directions: Church leaders led groups to the Salt Lake Valley, then returned to guide the next group west. Sometimes described as a “village on the march” (Mutel 1989a), the Mormons built whatever they would need for their mission; in addition to camps, they constructed bridges and ferry stations, and even left mileage markers for the use of subsequent travelers on the route. The Mormon Trail was so well established that California-bound prospectors and settlers on their way to Oregon took advantage of its developments in subsequent waves west. For all of these migrations, Council Bluffs was a major outfitter for the westward migration and the California gold rush. Some gentiles stayed in the area, filling “gaps” in the local economy by establishing saloons and gambling institutions (Bloomer 1871a).

This influx of gentiles introduced conflicts of morality, and tensions began to mount. In 1852 Brigham Young called the faithful to leave what he considered to be an increasingly sinful Iowa environment and come to Utah. Gentile residents of the area were pleased to see the polygamist church leaders leave. Many gentiles personally benefited from the Mormons’ call to Zion, as Mormons sold their goods and businesses to those who stayed in the area (Decision Data, Inc., and Tallgrass Historians, L.C. 1998b).

Although Young called all Mormons to Zion in 1852, the migration continued well into the 1860s,<sup>54</sup> and not all Mormons emigrated. Some stayed behind to ensure an adequate stock of food and provisions for the migrants. A fair number stayed to care for family members too frail to make the journey; others remained because they disapproved of Young and his doctrine of polygamy (Bloomer 1871a).<sup>55</sup>

---

<sup>52</sup> This burial site is now part of Fairview Cemetery.

<sup>53</sup> Women greatly outnumbered men, and polygamy was practiced in Iowa, but only by church leaders (Bloomer 1871a).

<sup>54</sup> By 1856 a new wave of Mormon migrants, converts originating from Europe or the eastern United States, were traveling as far west as they could by rail (to Iowa City), then continuing the trip with handcarts filled with “clothing, bedding, and provisions and children unable to walk” (Dodge 1932). The carts weighed an average of 90 pounds, and had to be pushed by hand over rough terrain. A typical group would have approximately 100 people with 20 carts, 5 tents, 3-4 cows, and 3 yoke of oxen. Several hundred migrated, many from England. In 1856, 420 started out from Iowa City; only 67 continued all the way to Salt Lake (Decision Data, Inc., and Tallgrass Historians, L.C. 1998b; and Dodge 1932).

More than 70,000 Saints traveled westward along the Mormon Trail between 1846 and 1868 (Decision Data, Inc., and Tallgrass Historians, L.C. 1998b).

<sup>55</sup> Among those who rejected Brigham Young's doctrine of polygamy was Charles B. Thompson. He stayed in western Iowa and established his own branch of the Church in Monona County. Selecting a site along Spring Grove Creek in the Soldier River valley, Thompson founded the town of Preparation in 1854. Before long, Preparation boasted several log houses, a sawmill, and a hotel. However, all was not well. Thompson demanded that his followers deed all of their property, both

Nevertheless, 1853 was a watershed year in Kanesville's history. A change in the city's name to Council Bluffs signaled the transformation of the city from a Mormon settlement to a gentile one. A great fire on November 14, 1853, destroyed 25 buildings, including the entire Council Bluffs business district. Another fire exactly one year later destroyed another 17 (Bloomer 1871b). Entrepreneurs established regular ferry service between Council Bluffs and Omaha, a new town platted across the Missouri River in Nebraska Territory in 1854. Land speculation was feverish in 1855-57, but finally settled down during the Panic of 1857. Western Iowa was largely relieved of the financial strains of the 1857 Panic; émigrés on their ways to California, Oregon, and Utah kept the outfitting center bustling with trade (Bloomer 1872).

**Other Loess Hills Settlers.** About the same time the Mormons established themselves in Pottawattamie and Mills Counties, farmers and entrepreneurs settled in other parts of the Loess Hills. McKissick's Grove, the first white settlement in Fremont County, was established in 1840. Dr. Ira D. Blanchard settled in Civil Bend in 1846. By 1847 there was a general store in Hamburg, and John Leeks constructed the first gristmill in the county on Plum Creek that following year (Andreas 1875). Fremont County was organized in 1850-51. Orchards of apples, cherries, and other small fruits thrived there in the 19<sup>th</sup> century, as did groves of wild grapes, raspberries, strawberries, and plums (Andreas 1875). Mills County was separated from Pottawattamie County in 1851. Coonville, originally a Mormon camp, was designated the county seat. Shortly thereafter, the Coonville's name changed to Glenwood (Andreas 1875). Daniel Brown was the first white settler in Harrison County; he arrived near present-day Calhoun in 1848 (*Atlas of the State of Iowa* 1924). When Harrison County organized in 1853, Magnolia was named county seat. Logan, settled in 1867, replaced Magnolia as county seat in 1875. Isaac Ashton was the first Euro-American in Monona County; he settled just north of present-day Onawa in 1852. The county was organized in 1854, establishing its seat at Bloomfield. The town was forced to change its name to "Ashton" when it was discovered that Iowa already had a town named "Bloomfield" (Andreas 1875). What is now Woodbury County was established as Waukaw County in 1851. Two years later the name was changed to Woodbury and the county seat fixed at Sergeants Bluff (Marks 1904). In May 1849 Theophile Bruguier of the American Fur Company settled at the mouth of the Little Sioux River with his Indian wife (the daughter of Chief War Eagle) and their four children. War Eagle, his daughters, and Bruguier were buried on a bluff overlooking the settlement that was within the town platted as Sioux City in 1854-55 (Andreas 1875). At the time, only two log cabins stood at the town (Andreas 1875; and Marks 1904). William Thompson established a town near Sergeant Floyd's grave; the first African-American settler in the region, John Brazo, settled in Thompsonstown in 1850 (Lindgren n.d.).

One of the most interesting early settlements in Fremont County was the Congregationalist settlement of Tabor. The Congregationalists (like the Baptists and Methodists more common in eastern Iowa) were anti-slavery, and Tabor's proximity to slave-holding Kansas gave residents ample opportunity to practice their abolitionist beliefs. A group moved to Fremont County from Oberlin, Ohio, in 1848, hoping to establish a Congregational College in western Ohio. George Gaston, Rev. John Todd, and William Brooks originally settled with ten other families in Percival along the Missouri River, but Todd's cattle wouldn't eat slough grass, so they moved south. Gaston, Todd, and Brooks established Tabor College in 1852 on 20 acres given to them by Gaston's neighbor, Ira Blanchard, a close associate of the infamous abolitionist, John Brown. Blanchard, Todd, and the others formed a network among their colleagues to assist African Americans in leaving the slave territory of Kansas for freedom in the North. Sources indicate seven landowners in Mills County and 33 in Fremont

---

real and personal, to him. Hugh Lytle led a group in protest of Thompson's policy; Lytle's group left Preparation and sought recovery of their property rights in court. Although the initial lawsuit failed, objections to the religious leader's policy spread, and Thompson left Preparation in 1858 (Rogers 1990).

County were actively involved in the Underground Railroad. Todd's house was the focal point of the network's southwest Iowa anti-slavery activities, and John Brown's secret headquarters in Iowa.<sup>56</sup> Crossing the Missouri River from the west, African Americans hid in the slough grass along the Missouri and Nishnabotna rivers, or in the hills (Department of Cultural Affairs 1999). "The usual route of the underground railway followed the valley. It crossed the river at Nebraska City, followed the old river bend around to the Rickett's place, crossed it, and continued up past Lester Platt's to Dr. Blanchard's, then past Rube Williams', Joe Treat's, and on to [John Todd's house in] Tabor" (Ricketts n.d; Blackburn, personal communication).

While most who came to establish businesses came by river, those who came to farm generally arrived over land (Dodge 1932). "Settlement was limited to river valleys because they were wooded, and the rivers provided dam sites for flour mills as well as a ready means of transportation" (Conard and Cuning 1990). Early migrants settled at the base of the hills, avoiding the creek beds for fear of disease. Like prehistoric peoples, they settled on the south faces of the bluffs, which gave them the advantage of the sun for warmth and protection from cold north winds in winter. It was a relatively simple matter to carve out caves for shelter until more suitable housing could be constructed (Reese 1994). As more settlers came, they farmed the shallow valleys and used the hills for grazing livestock.

The first steamboats began running the Missouri River to serve the fur traders in 1831. Gradually the market changed and agricultural supplies and residential goods became the primary cargoes. In the 1850s and '60s, most of those coming to Council Bluffs traveled by land to St. Louis or Jefferson City, Missouri, then by steamboat up the Missouri River (Holt 1925). For more than a quarter-century, Council Bluffs was the boats' northernmost regular stop. The first chartered steamboat reached Sioux City in 1856 (Rogers 1990). Regular steamboat service to Sioux City was established in 1859 (Holt 1925); and by 1860 Sioux City's market dominated the Missouri River traffic. In the 1860s, five steamboats visited Sioux City annually (the most famous of which was the *Omaha*) carrying groceries, farm implements, mining tools, and passengers (Holt 1925).

Early roads went north-south along the base of the bluffs, and east-west along river valleys when feasible. By 1851 the South Tier State Road crossed Iowa's southernmost tier of counties from Bloomfield on the east to East Nebraska City (also called Eastport) on the west. Dirt roads connected the farmers to towns, and before long one was established the length of the Loess Hills at the base of the bluffs from Hamburg north to Sioux City (Bonney 1994). By the 1850s stagecoach service was available along Iowa's western border, and post offices were established in most towns along the routes (Rogers 1990). Additional stagecoach roads traversed the hills; the trace from Glenwood to Tabor is still easily visible along the ridge tops (Blackburn personal communication). Nevertheless, development of the Loess Hills region was sparse until railroads came in the 1860s and '70s,<sup>57</sup> permitting settlement further away from the waterways (Rogers 1990).

**The Railroads.** "Railroad companies were the largest landowners in the West after the land grants of the 1850s, and ... the key to continued extension of the railroads west was the disposal of unused lands for cash" (Conard and Cuning 1990). Some railroads had land agents on their payrolls; others controlled local real estate agencies. They offered discounts and/or low interest as inducements to

---

<sup>56</sup> Brown used Todd's house to conceal arms and ammunition that Brown later used in confrontations in Kansas and for the 1859 insurrection at Harper's Ferry, West Virginia. The John Todd House in Tabor, Fremont County, is listed on the National Register of Historic Places for its historical and architectural significance.

<sup>57</sup> The first railroads crossed the state in 1867. These provided a year-round access to eastern markets, and transportation to areas inland from the rivers and streams. In 1869 the first transcontinental railroad was completed; the Western Stage Company went out of business that same year.

settlers in the 1870s. Land sales boomed along the rail lines, and so did land prices.<sup>58</sup> The railroads established towns 5-15 miles apart.<sup>59</sup> More towns meant more money for the railroads.<sup>60</sup>

The railroads provided the land, and access to the land. In many instances, they also provided the population. “Railroads needed laborers to build the roads, and they needed settlers to assure passengers and freight on the new lines. To solve the problem they went to Europe to encourage immigration, met arrivals at eastern seaports to bring settlers west” (Conard and Cuning 1990). Beginning in the 1850s railroads printed brochures praising the Midwest, even reminding eastern women of the large number of unmarried men in the West. “Once the companies published their routes, towns from which construction would begin did a bush business as tradesmen and laborers flocked there in search of [jobs] on the railroad” (Conard and Cuning 1990). Hotels were established. Women made money as laundresses and bakers, and rented rooms to boarders.

Most early railroads focused on the southern half of the state, extending lines toward Council Bluffs where they could tie into river traffic, and later to the transcontinental railroad (Conard and Cuning 1990). The first such route was planned in 1858 when a meeting convened in Council Bluffs to discuss the potential for year-round rail connections with St. Louis and St. Joseph, which they hoped would enable traffic to continue even when the Missouri River was not navigable.<sup>61</sup> Unfortunately, the Civil War interrupted those plans (Halma 1974). The St. Joseph & Council Bluffs Railroad reached Bartlett in Fremont County, Iowa, in January 1867, and was extended to Council Bluffs in August of the following year (Halma 1974).

The St. Joe & Council Bluff was not the greatest railroad plan in the works. Grenville M. Dodge, then of Iowa City, first visited Council Bluffs while surveying for the Chicago & Rock Island Railroad in 1853. Immediately aware of the city’s potential, Dodge established his residence in Council Bluffs.<sup>62</sup>

<sup>58</sup> Early land speculation associated with the railroads was a major cause of the financial Panic of 1857. Although Iowa prohibited the issuance of state paper money, Nebraska bills were common in western Iowa. The failure of Benton’s Bank in 1857 signaled the beginning of the Panic in Council Bluffs. According to Sidney Halma, “Council Bluffs residents were literally without money for some time.” Stores issued their customers coupons worth five to fifty cents toward purchases, and farmers burned corn for fuel. Nevertheless, the emigrant trade protected Council Bluffs from the full impact of the Panic. The 1858 discovery of gold near Pikes Peak in Colorado stimulated a revival in the outfitter trade. Although the rush lasted only one year, the positive effects for Council Bluffs endured. The rush stimulated a boom in the Bluffs, witnessed by the construction of hotels, initiation of a “horse railroad” from the city to the landing, and the establishment of the city’s first pork packing plant in 1859 (Halma 1974; Bloomer 1872).

As the Colorado gold rush waned, settlement of the trans-Missouri west burgeoned, and Council Bluffs was ready to outfit the new wave of farmers. Newspapers publicized the Mormon Trail as the “natural highway” to the west. The Council Bluffs Nonpareil published maps of the overland trail following the Platte River across Nebraska and into Colorado, marking every ferry stop, bridge, and station along the way. At least one of these maps falsely depicted Council Bluffs as being closer to the emigrants’ destination than it actually was. By April of 1860, fifty wagons left Council Bluffs daily for the west, and another “1,000 emigrants arrived by steamers, wagons, or stage” daily. Four out of five of those emigrating from Iowa, Illinois, Indiana, and points northeast came to Council Bluffs. Many of those who arrived with intentions to travel further chose, instead, to stay and participate in the profitable outfitters’ business (Halma 1974).

<sup>59</sup> The towns grew around the railroads following a rhythmic pattern: first depots and grain storage facilities, then businesses, and finally homes (Bonney 1994; Conard and Cuning 1990). The pattern is still evident in most railroad towns in the Hills.

<sup>60</sup> Most new towns in western Iowa were founded in the last quarter of the 19<sup>th</sup> century, following the introduction of railroads.

<sup>61</sup> River travel was dangerous due to hairpin turns prior to channelization, and it was only possible 7-8 months per year. (Rogers 1990).

<sup>62</sup> The Grenville M. Dodge House was designated a National Historic Landmark in 1964 for its association with General Dodge, a Civil War hero and railroad tycoon.

In 1859 Dodge used his personal connections with Republican Presidential candidate Abraham Lincoln to promote a transcontinental railroad through Council Bluffs and along the 42<sup>nd</sup> parallel. Dodge argued that the 42<sup>nd</sup> parallel was the practical, economical, and logical continuation of existing routes from Chicago west. Besides, Council Bluffs was already well established as an outfitting town. Lincoln, who himself owned 17 lots in the city, readily supported Dodge's proposal (Halma 1974).

Once the South seceded in 1861, Lincoln had no trouble warming Congress to the concept of a transcontinental railroad as a military necessity. The cost was relatively small in the context of the war effort. The federal government formed the Union Pacific Corporation, gave it ten sections of land, and promised \$16,000 for every mile of track laid.<sup>63</sup> The President summoned Dodge to Washington to discuss possible sites for the eastern terminus of the Union Pacific, and Dodge apparently convinced him to place it at Council Bluffs. However, Lincoln's proclamation was unclear and mentioned Omaha instead. When asked to clarify the situation, Lincoln issued a new proclamation, this time establishing the eastern terminus at "the western boundary of the State of Iowa." Thus, Omaha/Council Bluffs became the western terminus for the country's first transcontinental railroad (Halma 1974).

Grenville Dodge used his influence to bring the Chicago & Northwestern to Council Bluffs in 1866. The Sioux City & Pacific joined Council Bluffs and Sioux City in 1868. On May 12, 1869, the Chicago & Rock Island reached the city. The Burlington & Missouri Railroad arrived in Council Bluffs the following December (Halma 1974). Because of its location on the Missouri River and its status as terminus of several railroad lines, Council Bluffs became a major trade center.

So, too, did Sioux City. Sioux City was platted at the confluence of the Missouri and Big Sioux Rivers in 1854. Within a year, it was added to the stage coach stops and a post office was established. In 1855 the federal government placed a land office there and Woodbury County moved its seat from Sergeants Bluff<sup>64</sup> to Sioux City, setting the stage for a thriving settlement (Bonney 1994; Rogers 1990). In 1856 Sioux City had two small stores, one operating out of a tent. That's when James A. Jackson, a partner in the mercantile firm of Tootle and Jackson, chartered the steamboat *Omaha* for \$24,000, and loaded it with \$70,000 in goods including "sawmill ... equipment, furniture, dry goods, hard-ware and groceries"<sup>65</sup> (Marks 1904). Jackson hired Samuel Holland to run his store. Holland

---

<sup>63</sup> The payment increased to \$32,000 for track laid in hills, and \$48,000 for every mile laid in mountainous terrain.

<sup>64</sup> Early records show the town's name as "Sergeants Bluff," but later the Post Office recorded the name without the "s" and it has since been "Sergeant Bluff." (Lindgren n.d.).

<sup>65</sup> Along the rivers, early African American migrants sought work in river towns such as Sioux City and Council Bluffs. The men worked as laborers loading and unloading steamboat cargoes; chopping wood for fuel; and as porters and waiters. Women became domestic servants, such as laundresses, housekeepers, and cooks (Schweider 1996).

Although white-owned business sometimes recruited African Americans for menial labor jobs, in the 1840s Iowa was "inhospitable, if not hostile" to the Negroes (Schweider 1996). The white majority instituted "Black codes" restricting the rights of citizenship, including the franchise, service in the legislature; and barring black children from the public schools. The 1851 legislature went so far as to pass a law forbidding further Black immigration, but allowing those already in the state to stay. A requirement that all new laws be published in the *Mount Pleasant True Democrat* ensured that this law never went into effect however; the *True Democrat's* editor refused to publish it (Schweider 1996).

Gradually, Iowans became more tolerant. In 1858 the Assembly provided for the construction of separate schools for Blacks except where whites unanimously voted to let them attend existing white schools. Separate schools were built in only three eastern Iowa cities: Keokuk, Dubuque, and Muscatine. The rest of the state opened its school doors to all students (Schweider 1996). In 1868, 1874, and 1875 the Iowa Supreme Court outlawed the concept of "separate but equal" schools twenty years ahead of the United States Supreme Court (Schweider 1996).



subsequently ordered lumber to be shipped from St. Louis, and built Sioux City's first frame building at Second and Pearl Streets. The sawmill erected on Water and Second Streets was a major factor in Sioux City's growth. "The residences were chiefly above Fifth street [sic], as the ground was much higher and drier there" (Marks 1904). Before the streets were graded to level them out,<sup>66</sup> there was a natural "bench" at Fifth Street that offered protection against flooding and provided good wells (Marks 1904).

The first railroad route to Sioux City was authorized in 1856, but the financial Panic of '57<sup>67</sup> and the Civil War interrupted construction of the line from Dubuque. It was finally built in 1868-69. In the interim, the price of town lots rose steeply in anticipation of the railroad (Marks 1904). The entry of railroad service to Sioux City changed it from a small town to a booming metropolis. It enabled Easterners to bypass St. Louis, the center of steamboat shipping, and send goods by rail directly to Sioux City, thus escaping 1,000 miles of hazardous Missouri River shipping and reaching a year-round market<sup>68</sup> (Sorensen and Chicoine 1982). Before long, "the railroads ... entered the city from all directions, like spokes in the hub of a wheel" (Hafner 1940). The city had a population of 3,000 by 1868, and swelled to 20,000 by 1875 following the introduction of rail traffic (Hafner 1940; and Bonney 1994), providing substance to Leah Rogers' claim that "the greatest impetus to the city's growth and development was its rail connections" (1990).

By 1870, the following railroads were operating in western Iowa:

<b>Railroad</b>	<b>Route</b>
Burlington & Missouri	Across the second tier <sup>69</sup> of counties, from Burlington (east) to Pacific Junction (west)
Chicago, Rock Island & Pacific	Davenport (east) to Council Bluffs (west)

By the time the second wave of African Americans came to Iowa following the Civil War, Iowa had become one of the most egalitarian states in the Union. When it granted Black men the franchise in 1868, it was the first state outside of New England to do so (Schweider 1996). In 1884 the Assembly passed a Civil Rights Act guaranteeing African Americans full access to public facilities (Schweider 1996).

The post-Civil War period witnessed a large influx of Blacks to the Sioux City area. Many worked as steamboat deckhands or constructed roads and sidewalks. By the 1870s African Americans started businesses in Sioux City, including recreational facilities such as dance halls and gambling institutions, barbershops, and laundries. By the early 20<sup>th</sup> century, Sioux City's Blacks also worked as policemen (Schweider 1996), firefighters, and meat packers (Schweider 1996).

<sup>66</sup> At first, the Loess Hills extended all the way to the river at Sioux City; some early residents complained the bluffs were too steep for a horse to travel over. Before long, they leveled some of the hills to construct streets and later electric streetcars.

<sup>67</sup> The Panic of 1857 halted expansion in Sioux City, as "professional men tried farming and stock raising to help out their incomes, and many of those who could raise money enough left" (Marks 1904).

<sup>68</sup> Sioux City's centrality to rail traffic was short-lived, however; in 1873 the rail lines were extended to Yankton, South Dakota, allowing traffic to bypass Sioux City on the journey west. See Sorensen and Chicoine 1982:39-40.

<sup>69</sup> Iowa's counties are laid out on somewhat of a grid pattern. The "second tier" would be the second row of counties from the southern border of the state.

Chicago & Northwestern	Clinton (east) to Council Bluffs (west)
McGregor & Missouri River	McGregor (east) to Sioux City (west)
St. Joseph & Council Bluffs	Council Bluffs on the north, runs south through Pottawattamie, Mills, and Fremont Counties into Missouri, where it connects with St. Joseph, Kansas City, and St. Louis
St. Paul & Sioux City	Under construction in 1870; would later join Sioux City (south) with St. Paul, Minnesota (north)

(Source: Iowa Board of Immigration 1870)

With so many lines competing for business, rate wars ensued. Some of the small lines could not compete alone, and there was a move toward consolidation via purchase of small trunks or the formation of pools<sup>70</sup> to share traffic and revenue. By reducing or eliminating competition, the pools also enabled the railroads to raise prices. These agreements lasted into the 1880s. Small, unprofitable trunk lines were abandoned, often resulting in the withering of towns dependent upon those lines for survival. The Great Pool folded in 1882, as it became too complex to manage. The Interstate Commerce Act of 1887 and the Sherman Anti-Trust Act of 1890 were initially ineffective in eliminating the remaining pools, but as was the pattern with railroad development, land speculation resulted in “paper fortunes” among Sioux City’s elite. In the 1870s, much of Sioux City’s business district was owned by a distant landowner, the Boston Improvement Company (Conard and Cunning 1990).

***Spanning the Missouri River.*** “Westward expansion accelerated demands for transportation, resulting in rapid railroad expansion, speculation in real estate, and a general scramble for quick fortunes. Speculation was particularly common in the outfitting centers that engaged in the lucrative business of supplying immigrants,” particularly Council Bluffs and Sioux City<sup>71</sup> (Halma 1974). Once

---

<sup>70</sup> In western Iowa, the most noted were the Iowa Pool, Omaha Pool, and the Great Pool.

<sup>71</sup> Just as Council Bluffs was perfectly situated to outfit the early migrations west, in the 1860s and '70s Sioux City stepped forward to outfit the settlement of the Black Hills in Dakota Territory, largely due to the personal interests of Charles Collins. Collins was the editor of the *Sioux City Times* and an “ardent Finian” interested in establishing a colony of Irish-Americans on the northern reaches of the Missouri River with an eye toward eventual invasion/capture of Canada. Although a convention of Finians approved the concept in 1869, a group sent to the Black Hills found the area uninviting and the idea languished. The Black Hills region was closed to settlement until 1874. Nevertheless, Collins was determined to encourage population of the Black Hills, and published a series of articles promoting the area, many claiming the likelihood of gold in the hills. On February 27, 1872, Collins organized the Black Hills Mining and Exploring Association of Sioux City. Together with the *Sioux City Journal* editor Thomas Russell, he organized an expedition. However, the army ordered them to stay out of the Black Hills area, which was still occupied by the Sioux Indians (Erikson 1922).

In 1872, General George Custer led his troops into the Black Hills and verified the presence of gold. Following Custer’s reconnaissance mission, General Philip Sheridan recommended further exploration of the area for its timber and mineral (gold, silver, and lead) resources. In 1874 copies of Custer’s report were published throughout the Midwest, but nowhere more enthusiastically than in the *Sioux City Times*. Collins proposed Sioux City as the logical location for outfitting Black Hills miners and settlers. That same year, Collins and T.H. Russell recruited 11,000 men from Iowa and Illinois to go into the Black Hills. Again, the federal government forbade the trip. While Collins and Russell verbally agreed to drop their plans, they continued them in secrecy (Erikson 1922).

Sioux City’s hotels filled. The overflow crowd pitched tents on Prospect Hill. One hundred dollars procured a rifle, revolver, ammunition, pick, shovel, pan, cooking utensils, blankets, and salt. “For \$569.85 full equipment for a party of five could be secured, including a wagon, horse, provisions and tools.” All were advised not to start out without an okay from

it was enough to bring goods to the Missouri River and then transfer them to steamboats. Later, laborers transferred cargoes from the rail cars to ferries at the Missouri River crossing, then back to rail cars on the other side. By the 1870s a bridge spanning the Missouri became vital to the health of the railroads and the outfitters.

Building a bridge across the Missouri was no easy task. According to Grenville Dodge, Chief Engineer for the Union Pacific Railroad, the Missouri River was the most formidable obstacle to travel between the Atlantic and the Pacific due to its unpredictable nature and violent channel shifts (Fraser Design 1986). Early (pre-1870) bridges were wooden. Later bridges employed the use of iron, which was less vulnerable to floods, but was very expensive. Because of the high cost of iron, many bridges were a combination of iron and wood. After the Bessemer process was developed, steel was more affordable, so it was used exclusively for strength (Roberts and Fraser 1995).

Octave Chanute was the first to construct a railroad bridge across the Missouri River. Completed in 1869, Chanute's bridge spanned the Missouri at Kansas City. The following year the Army built a bridge further north to provide access to Fort Leavenworth, Kansas. Shortly thereafter the publicly funded Atchinson and St. Joseph Bridge was constructed to link those two cities. Undoubtedly, the Union Pacific Railroad Bridge joining Omaha and Council Bluffs was the most spectacular bridge of its day. Built between 1869 and 1872 at a cost of \$2.9 million, the Dodge design was one-half mile long with wrought iron trusses planted in bedrock (Fraser Design 1986).

Because Dodge's Union Pacific Bridge was the first one north of Fort Leavenworth, Kansas, other railroads clamored to use it. The Union Pacific accommodated their requests in exchange for a toll. The arrangement was challenged in the courts, and in 1876 the U.S. Supreme Court ruled against the practice. However, Congress immediately passed a law legalizing the tolls, and the practice resumed (Fraser Design 1986). Angered by the tolls, many competing railroad lines decided to build their own bridges between Iowa and Nebraska.

It was not Dodge, but rather George Morrison who standardized Missouri River bridge construction, and was instrumental in the development of the steel bridge industry in the 1880s and '90s (Fraser Design 1986). In the 1880s, Morrison built bridges across Missouri River at Plattsmouth, Blair, Omaha/Council Bluffs, Rulo, Sioux City, and Nebraska City. Each succeeding bridge reflected a change in technology, resulting in bridges that were stronger, safer, and reasonably expensive.

Morrison's first bridge across the Missouri, built in 1879-1880, crossed the river at Plattsmouth, Nebraska. Constructed for Chicago, Burlington & Quincy Railroad of steel and iron, the Plattsmouth Bridge has six long-span whipped trusses. A change in the channel at Omaha/Council Bluffs enabled

---

Collins and Russell. Too anxious to wait, some ignored this advice and ventured into the Black Hills. The Army arrested them and escorted them to Fort Laramie, Wyoming, forcing Collins to go to Wyoming to retrieve them. The party returned to Sioux City to a hero's welcome (Erikson 1922).

Anxious to jump on the bandwagon, some rivals formed the Sioux City and Black Hills Transportation Company in 1875 for the purpose of outfitting and transporting settlers to the Hills. Collins, who viewed himself as the "patron" of Dakota Territory, was angry that he was not invited to join. The Sioux City and Black Hills company sent its first party to the Black Hills, but the Army intercepted them and forced them to return to Sioux City (Erikson 1922).

Aware that their ability to keep prospectors out of the Black Hills was limited, the federal government entered negotiations with the Sioux seeking permission to allow miners to enter or outright purchase. Negotiations failed, and the Army receded from the area. Now the prospectors' problem was not the Army, but the Sioux fighting to protect their hunting grounds. Major warfare followed, culminating in the Battle of Little Big Horn on June 25, 1876. The government finally achieved a treaty with the Sioux the following October. Settlers poured into the Black Hills, first overland, then by the river, and eventually by rail. Finally, the Sioux City outfitters got rich (Erikson 1922).

a shorter bridge at that location, and the Union Pacific hired Morrison to design a replacement for Dodge's 15-year-old bridge in 1887. Constructed of steel and iron, Morrison's Omaha Bridge included a cantilevered pedestrian/vehicular roadway along with the rail system. The following year Morrison built an all-steel multi-span Whipple bridge at Sioux City, and another all-steel bridge at Nebraska City. The Nebraska City Bridge accommodated trains, vehicles, and pedestrians, but not simultaneously (Roberts and Fraser 1995).<sup>72</sup>

Dodge and Morrison generally took advantage of the loess bluffs on either side of the Missouri River when planning the locations for their spans. The bluffs provided a measure of predictability to the river channel. When asked to design and build a bridge near Blair, Nebraska, Morrison was unable to find a bluff-protected spot. After pursuing the possibilities within a 50-mile radius, Morrison constructed the Sioux City and Pacific bridge at Blair Crossing, approximately 20 miles north of Omaha. His notes recorded his frustration at the unpredictability and volatility afforded by the unprotected location (Fraser Desing 1986).

**Agriculture.** Indeed, the Loess Hills landform region proved both a blessing and a curse to many who chose to live in western Iowa. Certainly the soil itself was a great blessing for the settlers. Nineteenth century accounts took careful note of the landform and its suitability for agriculture.<sup>73</sup> Settlers built their homes and towns within the valleys of creeks and rivers because that was where they could find timber<sup>74</sup> and to take advantage of the water to run their mills. When they could, many farmers kept some of their land wooded for slow consumption as firewood. Where there weren't trees, farmers planted them for shelter from summer heat and winter winds. Early farmers avoided the alluvial plains because they were marshy and ill suited for farming, and because the settlers feared diseases associated with wetland areas. They adjusted their land use in accordance with what was available at any particular time, cultivating the prairie tops when the valley was too marshy; moving to the valley once the marshes were drained,<sup>75</sup> and all the while using the hillsides for grazing (Bettis 1994; and Sayre 1989).

---

<sup>72</sup> All of the Morrison Bridges are listed on the National Register of Historic Places.

<sup>73</sup> To quote A.T. Andreas: "The soil is that of the well-known bluff deposit, descending to a very great depth, and on the surface richly mingled with vegetable mold. This entire deposit is strongly siliceous, but everywhere finely pulverized and intermingled with a slight proportion of lime, sufficient to give it the remarkable consistency for which it is celebrated. It readily absorbs moisture, so that surplus water never remains upon its surface, and its great depth enables it to retain enough to supply vegetation in case of a long absence of rain. ... This peculiar soil seems to be equally well adapted to the production of wheat, corn, and grass, a combination which is extremely rare. It lies within the great wheat belt, ... overlapping the belt noted for the highest production of corn. The other cereals do equally well here. Wild grasses grow luxuriantly, and tame grasses thrive, and the soil is well adapted to vegetables and fruit"<sup>73</sup> (Andreas 1875). ...The country is well watered by unfailing streams" (Andreas 1875).

<sup>74</sup> Farmers cut trees to build houses, barns, and fences, and for firewood (Christiansen and Sayre 1989).

<sup>75</sup> In the early settlement years, the alluvial plain was ill suited for crops. It was marshy and subject to frequent flooding. Initially, farmers used the marshlands for hay production only (Rogers 1990). With its passage of the Swampland Act of 1850, the federal government encouraged farmers to drain the Missouri River wetlands and farm the rich bottomlands. Counties sold swamp land for \$1.25 per acre later reduced to \$1.00, only 20 percent of the cost of nearby prairie and woodlands (Grant 1999). As early as 1868 farmers in Monona County were draining the swamps and using the bottomlands to grow row crops, and the bluffs for pasture. Sometimes the bottomlands they purchased were miles from their farms (Reese 1994; Rogers 1990; Blackburn personal communication 2000). By the early 20<sup>th</sup> century, the Missouri River bottomlands across western Iowa were drained by tiling fields, and constructing levees and drainage channels (Rogers 1990).

While the Swampland Act was successful in claiming the bottomlands for agriculture, some ecologists consider its results to be disastrous. Draining the wetlands destroyed the natural habitat of many birds and fauna. In addition, the elimination of the swamplands meant the elimination of a natural barrier to flooding; the marshes naturally absorbed, filtered, and slowed the flow of heavy rainfalls. The loss of the wetlands and the coincidental channelization of the Missouri River into a less meandering course created a situation where each heavy rain resulted in fast-flowing, erosion-accelerating floods (Grant

“The typical farm ... practiced a combination of subsistence and market agriculture. It had a large garden where the farmer’s wife and children raised all the vegetables the family would need for the year: beans, potatoes, corn, squash and pumpkins, beets, carrots, cabbage, turnips, and so on. ... For fruits there were strawberries, raspberries, currants, apples, pears, and melons. The surplus was canned or stored in root cellars (which doubled as shelters in tornado weather).

Horsepower ran early farms. The husband and older children and/or hired hands raised the market crop. “... A farm wife also raised chickens and, if she was particularly enterprising, geese or turkeys, selling the eggs and extra birds in town.” (Sayre 1989).

Farmstead development reflected a functional response to the landform. Settlers built their homes and farmsteads close to a source of water, which could be either a creek or a spring exiting at the base of the bluff. Prior to about 1940, farmsteads were often located on the elevated terraces located at the base of the bluff edge, usually on the north side of the alluvial fan of small tributaries.<sup>76</sup> The main house and primary farm structures were generally oriented to the southwest or south with bluffs buffering the north winds. Cellars were built into the base of the bluff.

***The Search for New Settlers.*** In the first two decades of settlement, farmers encouraged friends and relatives to join them in the Loess Hills communities.<sup>77</sup> Spelling and punctuation errors did not detract from the message written by Frederick Rector of Fremont County to his friend, Charles Shockey, on February 14, 1856:

... [The] country layes high and rolling with the richest soil in the world. The top of the highest hill will produce a growth of grass higher than a mans head or will produce any other vegetabil ... in grater perfection than your richest botom land. Their is scarcely ever a day known that the sun did not shine. We have had the butifulest winter that I ever saw ... We had excellent cropps of all kinds wheat corn fruit of all kinds whare their was apel or peach trees large enough they were full. We have wild fruit in abundace of extry quality. The country bounds with plumbs strawbarrys resberrays grapes ... You want to know about the mill sites. Their is excelent mill sites in this country. The streemes are verry durabel. They are suported by springs. ... [sic] (Rector 1856).

By 1870 both the railroads and the State of Iowa were actively recruiting additional settlers to the region.<sup>78</sup> I.D. Tostevin’s *Home for the Millions* told prospective settlers, “There was a vast region

---

1999). “In a typical year, 5,000-10,000 acres of cropland are destroyed or damaged by gullies in the west part of Iowa” (Bettis 1994).

<sup>76</sup> On the Missouri River bottomlands, alluvial fans at base of bluff are much richer soils and better drained, therefore easier to cultivate. Past the ends of those fans, the bottomland soil is a gumbo. The surface dries quickly to a hard crust, but layers under the surface retain moisture therefore making soil conditions deceptive and harder to work. As soon as the wet prairies on Missouri River bottom were ditched and drained, people built farmsteads out on bottomland (Blackburn interview 2000). This would have happened in the mid-1870s and later as ditch-making machines became widely available.

<sup>77</sup> Ethnic groups settled in some areas : Scandinavians settled in Albaton, Soldier, and Moorhead; Germans in Mapleton, Danbury, and German City; Irish and Scottish in Blencoe and Danbury; and French Canadians in Salix (Rogers 1990). Many Irish came to Fremont County to build railroads in the 1870s (Ricketts n.d.). Danish settlers entered the area south of Sergeant Bluff in the 1870s and 1880s.

<sup>78</sup> In 1869 Lutheran minister B.M. Halland and the Burlington Railroad entered into an agreement under which the railroad set aside one of its new towns for Swedish immigrants. Centered in Stanton, the Swedish community extended into Page, Cass and Fremont Counties (Schweider 1996). The primary occupation of the Swedes was farming; those who didn’t farm worked in the coal mines. In many instances, they worked farms during the growing season, and mined in the winter months (Schweider 1996).

between the Des Moines and Missouri Rivers that awaited but the touch of civilization to change it from a desert to a garden” (Tostevin 1870).<sup>79</sup> The Board of Immigration pamphlet, *Iowa: The Home for Immigrants*, pointed out the attractions of the Loess Hills to prospective immigrants. The Iowa Board of Immigration mentioned the coal mines of Monroe County, limestone in the northwest, the fertile alluvial bottomlands adjacent to the Missouri River, 2000 miles of railroads within the state. It noted that farming was the primary occupation of Iowans, and that one-sixth of the state’s land (mostly in the northwestern part of the state) was still available for purchase (Iowa Board of Immigration 1870). According to that pamphlet, the farms of Iowa were producing wheat, corn, oats, grains, potatoes, sorghum, flax, grasses/hay, root plants, “salad” plants, and other fruits and vegetables. In addition, Iowa was fifth in the nation in livestock production;<sup>80</sup> in specific categories of livestock production, Iowa ranked fourth in production of hogs; fifth in horses; and sixth in cattle and oxen; and in sheep (Iowa Board of Immigration 1870).<sup>81</sup>

Although the Civil War had caused a shortage in farm labor, some of the reduced manpower was balanced by the introduction of technological advances such as horse-drawn planters, reapers, mowers, and threshers (Bonney 1994). According to *The Home for Immigrants*, the equipment needed to work a 40-acre farm in 1870 included a team of oxen or horses @ \$150-300; a wagon with yoke or harnesses @ \$100-150; a plow @ \$20-30; a cultivator and harrow @ \$20-40; and other implements/tools @ \$10-20; for a total cost of \$300-540. For a larger farm, add a mower and reaper, which could be purchased in common with neighboring farmers.<sup>82</sup> The pamphlet recommended against bringing the equipment, stating it was cheaper to buy it new in Iowa and that the equipment would be better suited to the Iowa landscape. The pamphlet advised that garden seeds be brought from elsewhere. The Board of Immigration stated that lumber was easily accessible by rail, and suggested consideration of purchasing a ready-to-assemble home from one of the catalog companies in Chicago (Iowa Board of Immigration 1870). Tostevin added, “The value of a farm in this grain and stock raising region must depend on its proximity to a railroad” (Tostevin 1870). He noted that by 1870, there was not a quarter section of land more than 20 miles from the closest rail line. Land sold for \$4.50-\$10.00 an acre, depending upon its distance from the railroad “and the disposition of the owner” (Tostevin 1870).

*The Home for Immigrants* also advised prospective immigrants regarding local wage scales. In 1870, an Iowa farm laborer could expect to make \$18-25/day, while an unskilled laborer in the towns or cities would make only about \$2/day. Plasterers made \$3.50/day; brick and stone masons \$3-4/day; and carpenters \$2.50-3.50/day (Iowa Board of Immigration 1870).

---

<sup>79</sup> Tostevin’s treatise virtually ignored centuries of Native American occupation of the area, and the more recent settlements by the Mormons in the 1840s, beginning the story of settlement of western Iowa with the outfitting of the 1849 California gold rush.

<sup>80</sup> Behind New York, Ohio, Pennsylvania, and Illinois.

<sup>81</sup> In the 1870s hogs were the dominant livestock in Monona County, and corn the primary crop. During that decade livestock farming superseded crop production in the northern Loess Hills, and farmers shipped their goods to Sioux City for processing and shipping (Rogers 1990). To demonstrate the tremendous growth in farm products, John Pohlman quoted these figures for Harrison County: In 1856 there were 2,644 bushels of corn raised in the county. By 1880, the figure exploded to 4,363,991 bushels, and by 1887 it was at roughly 6,000,000 bushels of corn. More than 75,000 head hogs were sent to market in 1887 (Pohlman 1992).

<sup>82</sup> The Carstens farmstead near Avoca in Pottawattamie County is an excellent resource for understanding regional farming over a 75-year period. Johann C. Carstens, a German national, purchased 160 acres near Avoca from a railroad company in 1871. Three generations of Carstens farmed the land. Upon his retirement in 1977, Henry Carstens, Jr., donated 80 acres and its associated agricultural collection to the Historical Society of Pottawattamie County with a stipulation that it be restored and operated as a turn of the 20<sup>th</sup> century farmstead.

***Changes in the Hills.*** The recruitment campaigns were highly successful; additional settlers poured into the Loess Hills. Areas once sparsely settled became beehives of activity. “The changes were rapid and dramatic,” according to Cornelia Mutel, “flowing both from the settlers’ desire to purposefully trans-form nature and from their inadvertent alteration of natural processes.” She added, “Perhaps the most obvious human alterations involved the physical reshaping of the Hills” (Mutel 1989a). First it was small in scale; horse hooves formed trails “where passage was easiest—through lowlands or along the western edge of the bluffs.” Then more dramatic changes occurred: settlers built dams for water power; carved the bluffs to construct caves for storage, kilns, and stables; mined limestone, sand, gravel, shale and construction fill; leveled bluffs to make way for cities; constructed roads and railroads; and farmed the prairies. Settlers reshaped the valleys as well, straightening the meandering Missouri River and its tributaries into channels to hasten drainage,<sup>83</sup> and constructing dams to control flow and dikes to prevent flooding. Some impacts were inadvertent: plowing slopes for cropland accelerated erosion;<sup>84</sup> grazing large herds of cattle degraded the prairies, also exacerbating erosion; and baring soil for construction or recreational purposes. Exposing the soil to water destabilized the loess soil, rendering it unable to support its own weight. Farmers cut native woodlands for construction and fuel, and replaced them with exotic species.<sup>85</sup> River channelization and drainage projects destroyed formerly abundant marshlands.<sup>86</sup> Settlers destroyed native habitats and hunted many large mammals to local extinction; “The black bear, mountain lion, elk, pronghorn, and bison<sup>87</sup> all were eliminated” (Mutel 1989a; and Pohlman 1992). By the end of the 19<sup>th</sup> century, the Loess hills had been transformed.<sup>88</sup>

***Coal Mining.*** There were other changes to the land. As humans sought to extract a living from the soil,<sup>89</sup> many did it by mining coal rather than raising wheat or corn.<sup>90</sup> The Loess Hills are on the

<sup>83</sup> Early attempts to drain water in the lowlands and straighten the meandering Indian Creek that wiggled its way through Council Bluffs proved disastrous. Heavy rains eroded the chasm with fast-flowing water that destroyed homes and bridges (Bonney 1994).

<sup>84</sup> The steepest bluffs were the least accessible, and therefore the least disturbed by humans.

<sup>85</sup> As they spread into the grasslands further away from the streams, settlers planted trees for shade and to create wind breaks, encouraged by the State Geological Society; the railroad companies, who placed stipulations requiring such planting within their land sale documents; and local governments, who granted tax advantages to those who planted trees (Bonney 1994; and Conard and Cuning 1990).

<sup>86</sup> Channelization projects continued to create new problems while solving others. According to Cornelia Mutel and Mary Swander: “Creeks and streams that had been straightened in the early part of the [20<sup>th</sup>] century to make way for more farmland became raging rivers trying to fight their way back to their original paths, taking chunks of land with them as they carved new channels. Major new gorges opened, collapsing bridges. Suddenly new gullies emerged in pastures and fields” (1994). Perhaps there is some truth in the saying, “A river knows its own course.”

<sup>87</sup> The last American bison was seen in the area in 1863 (Hunt 1915).

<sup>88</sup> Robert Grant emphasized the significance of the changes which occurred in the Loess Hills in the last 150 years when he said, “The Loess Hills . . . had a 9000 year natural history of relative balance, prior to the changes wrought by European agricultural techniques” (Grant 1999).

<sup>89</sup> Another extractive industry was the utilization of clay, which was important in Woodbury and Monona Counties. In 1856, T.C. Clarke became the first in the area to manufacture bricks (Lindgren n.d.). Beginning in 1866, clay from Sergeant’s Bluff was used to make bricks for paving, building, and drainage projects. Brick factories continue to operate at Sergeant’s Bluff. Gravel pits and concrete block manufacturing are also active industries in Turin, Sergeant’s Bluff, and Sioux City (Rogers 1990).

<sup>90</sup> The coal mines also induced many African Americans to come to western Iowa in the post-Civil War period. However, not all of the Blacks who came to the region in the post-war period worked in the mines. A cemetery for Blacks (13MN35), with burials dating from 1880s to 1907 (and a recent burial in 1988) is associated with a black settlement in Monona

western edge of Iowa's coalfields. In the Hills, mining activity was heaviest in Mills and Monroe Counties, but there was coal in all of the Loess Hills counties except Plymouth and Woodbury (Schweider 1996; and Iowa Board of Immigration 1870). The expansion of the railroads accelerated coal mining activities across the nation because the railroads were fueled by coal. As the number of miles of railroad increased, so did the number of coal mines in operation. The railroad companies frequently controlled the mines to ensure supplies adequate to meet their needs (Schweider 1996).<sup>91</sup>

It was the coal mines that first attracted the second wave of immigrants, the Eastern and Southern Europeans. Hailing from Italy, Croatia, Russia, Poland, and Lithuania, they came by the thousands to western Iowa. When mining waned as a viable industry, the Eastern and Southern Europeans turned their attention to the meat packing and associated industries (Schweider 1996).

***The Meat Packing Industry.*** The simultaneous development of the meat packing industry and construction of a web of railroads established Sioux City as a major municipality in the 1870s (Rogers 1990).<sup>92</sup> Railroads shipped cattle and hogs to the meat packing plants in Sioux City, and shipped meat products out (Conard and Cuning 1990). The city's packing industry started somewhat serendipitously when a steamboat loaded with wheat sank in the Missouri River near the city in 1871. Merchant James E. Booge bought the water-logged wheat, only good for use as animal feed. Then he bought some hogs, raised them on the wheat, slaughtered the hogs and sold the meat. Thus the James E. Booge and Sons Packing Company was established as Sioux City's first meat packing plant (Schweider 1996). Booge and Sons eventually employed more than 350 men (Hafner 1940).

Both the Union Stock Yards and Central Stock Yards opened in 1883 to handle livestock sales; they combined as the Union Stock Yards Company one year later.<sup>93</sup> Chicago's Robert D. Fowler and William H. Silberhorn opened additional packing plants in 1887 (Schweider 1996; and Hafner 1940). The Sioux City Livestock Exchange formed in 1888 (Hafner 1940).

***Boom and Bust.*** Fifteen years of rapid development fed local entrepreneurs' conviction that Sioux City could achieve anything it desired. City leaders promoted an atmosphere of confidence that the city was destined for success, and a fever developed among those wanting to share in her wealth. In 1884 there were 35 real estate firms catering to the crowds of newcomers; a year later the number of realtors had grown to 79! To quote Scott Sorensen and Paul Chicoine, "Prices for residential and business lots skyrocketed. For the second time in less than forty years, Sioux City became gripped with land-rush fever" (1982). Handsome new neighborhoods developed, and "electric and steam-powered street railway extensions to Leeds, Highland Park, and Riverside, a cable car railway to the

---

County. Adam Miers, a white man, was married to a black or mulatto woman named Mariah, or Big Moll. Needing assistance with farm labor, Miers encouraged other Blacks and Mulattos (many related to Big Moll) to settle in the area and help work the farm. The blacks lived in dugouts on Miers' land, many of which were destroyed by Soil Conservation Service terracing and dam construction in the 1960s. The area is now in pasture. There are eight burials currently marked at the cemetery, but WPA records from the 1930s indicate as many as twenty people were buried there (Rogers 1990).

<sup>91</sup> In addition to the so-called "shipping mines" which supplied coal for the railroads, there were mines opened specifically to meet local needs. These local mines operated on a seasonal basis to supply coal for winter heat. Sometimes farmers worked the coal mines in winter to supplement their incomes. The local mines kept many small communities alive due to the influx of cash (Schweider 1996). Coal mining declined in Iowa in the 1920s and never recovered (Schweider 1996). After decades of decline Iowa's mines closed in the 1850s and the state began importing coal from Kentucky (Schweider 1996).

<sup>92</sup> While the rise of the meat packing industry spurred Sioux City's growth, it "was made possible by the expanding network of rail connections" (Rogers 1990).

<sup>93</sup> One of the most interesting buildings in Sioux City is the Hog Hotel situated near the stock yards. Packing companies bought livestock at the exchange; it was held at the hotel until they could shuttle it to the packing company. Like the stock yards, the Hog Hotel is now vacant.



town's hilly Northside, and an elevated railroad to Morningside ... reached out to bind the city together" (Sorensen and Chicoine 1982).<sup>94</sup> From four rail lines active in 1886, the city boasted 11 lines either operational or on the drawing boards five years later. Boosters advertised the city's fortunes by constructing spectacular palaces of corn<sup>95</sup> that drew spectators from hundreds of miles away.<sup>96</sup>

The Chicago, St. Paul, Minneapolis and Omaha Railroad opened city's first bridge across the Missouri River in 1888, but city leaders weren't satisfied. In the giddy atmosphere of growth, they decided to avoid the railroad's high tolls by opening a second bridge, a "combination bridge" which would accommodate both rail and pedestrian traffic. Work on the second bridge started in December 1889. By 1890, there were almost 200 factories located in Sioux City (Hafner 1940). The frenzy continued; 1891 capped three years of unprecedented growth.

The beacon of prosperity first flickered early in 1892 due to an international tightening of capital funds. Suddenly the businessmen behind the construction of the combination bridge found themselves without sufficient capital to continue the project, and they turned it over to another developer. On May 18, the Floyd River flooded the stock yards and industrial district with disastrous results. Shortly thereafter, the Leeds Improvement and Land Company went into receivership. Then James E. Booge and Sons, one of the city's largest employers, went out of business (Sorensen and Chicoine 1982).<sup>97</sup>

The Panic of 1892 hit Sioux City hard. The population in the city decreased by half, as thousands left in search of opportunities elsewhere. Those who stayed faced the loss of jobs or major cuts in pay. When wage cuts caused the remaining meat packers to strike, the packing companies recruited African Americans from the South to come in as strike-breakers. The situation continued to worsen; the Panic of '92 became the Depression of '93. On April 25, 1893, the Union Loan and Trust and Hedges Trust Company went into receivership. Within weeks, more than one dozen businesses closed their doors (Sorensen and Chicoine 1982). Sioux City's boom was over.

Recovery was slow and painful. Some of the city's boosters, who had made and lost their fortunes in Sioux City, moved on. Others stayed, keenly aware that public confidence was shaken. But the Eastern capitalists who owned much of the city's real property were determined to make good on their investments. In 1894, they banded together to form the Credits Commutation Company for the purpose of recovering their losses. Although many were reticent to invest further funds in the ailing city, financier F.I. Eaton convinced them that the key to stimulating correction of Sioux City's

<sup>94</sup> Inter-urban transportation started out as streetcars pulled by horses or mules. Electrification began in 1886 in Richmond, Virginia, when Frank Sprague invented a direct current electric motor capable of pulling cars and withstanding the jarring stops and starts (Conard and Cuning 1990). The Sioux City Rapid Transit developed elevated tracks to get past swamps in the Floyd River valley. It started with steam power in 1891, and changed to electrical power shortly thereafter. Sioux City's "El" was replaced by ground-level tracks after the land was drained (1901-1903); it served as the model for Chicago's El, still in use today (Conard and Cuning 1990).

<sup>95</sup> Sioux City built five Corn Palaces—one each year—from 1887 to 1891. The design and construction of each Corn Palace was a major undertaking. For example, the 1887 Corn Palace required 46 men to build the wooden frame; 300 men to decorate it with corn, celery, beets, pumpkins, and squash; 300,000 feet of lumber; 15,000 bushels of yellow corn; 5,000 bushels of corn of other colors; and 1.5 tons of nails (Exhibit text, Sioux City Public Museum).

<sup>96</sup> According to Sorensen and Chicoine, 140,000 people came to see the 1887 Corn Palace during the 6-day event. It was then torn down, and planning began for the next year (1982).

<sup>97</sup> The blow was softened by a November 1892 announcement that a national packing company, Cudahy, would take over Ed Haakinson & Co. Cudahy expanded the operation to include beef and mutton as well as pork, and added the production and sale of animal by-products such as lard, soap, axle-grease, and glue (Hafner 1940).

economy was the completion of the combination bridge.<sup>98</sup> In addition, the Credits Commutation Company formed the Sioux City Stock Yards Company to resuscitate the city's main industry, and established the Live Stock National Bank to provide loans for area businesses. The Credits Commutation Company's successes convinced Armour and Company to buy the Silberhorn plant, thus establishing the city's second national packing company.<sup>99</sup> Sioux City's recovery, and that of the surrounding communities, was on its way (Sorensen and Chicoine 1982).<sup>100</sup>

The memory of the 1892-93 Depression lingered throughout the region. Resentment among white meat packers who had watched African Americans cross their picket lines in 1892 festered, and they retaliated by closing better jobs to Blacks.<sup>101</sup> The situation eased somewhat with the outbreak of the First World War, when any available labor was essential to fill positions. Nevertheless, the number of Blacks in Sioux City increased significantly in the early 20<sup>th</sup> century. According to the 1910 census, 305 African Americans lived in Sioux City. By 1920, the figure had swollen to 1,130. At that time 18 percent (18%) of the African Americans in Sioux City worked for packing companies, still mostly on the rendering and kill floors. Eastern Europeans also flocked to the packing houses, but were met with some resistance. First Blacks and then Eastern Europeans were relegated to the Bottoms area south of the packing plants, with the stench of the stock yards and the red light district. Racial and ethnic divisiveness was epitomized when the Ku Klux Klan marched in Sioux City in 1924 (Schweider 1996).

**Organized Labor.** The failure of the loosely-organized 1892 meat packers strike gnawed at the workers' memories as the muckrakers exposed the uncomfortable and often dangerous working conditions in the nation's packing plants. Packers noted the successes of the United Mine Workers (UMW), who organized Iowa's coal miners into the state's largest trade union in the 1890s.<sup>102</sup> The UMW's first major victory was the 8-hour workday. Thereafter, the union achieved higher wages, death benefits, and improved housing. Still, the meat packers were slow to follow the miners' lead. Workers in farm-related industries tended to be particularly independent and unwilling to turn their futures into someone else's hands, and management's strongly anti-union stance was well-proved by its history of hiring strike-breakers rather than negotiate with striking workers (Schweider 1996).

The passage of the National Labor Relations Act (also called the "Wagner Act") in 1935 was very important in Iowa because it legitimized unions by ensuring laborers the right to form unions and collectively bargain with management. The Wagner Act successfully ended practices aimed at stifling unions in the meat packing industry.<sup>103</sup> Perhaps equally important was the 1935 formation of the

---

<sup>98</sup> The bridge opened to traffic on January 21, 1896.

<sup>99</sup> Later Swift added operations in Sioux City (Schweider 1996:234). By the early 20<sup>th</sup> century, the Sioux City stock yards were handling livestock from Iowa, Nebraska, South Dakota, and Montana. Southern and Eastern European immigrants worked at the stock yards and lived in the Bottoms area nearby (Sorensen and Chicoine 1982).

<sup>100</sup> Still, even progress was painful. The development of roads in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries hurt many of the small railroad towns. As dependence on the railroad declined and roads improved, larger urban areas were more accessible to farmers. By 1920, farmers' dependence had shifted from the railroad cars to automobiles and trucks. Many small railroad towns never recovered (Rogers 1990; Lindgren n.d.).

<sup>101</sup> Packinghouse laborers were not alone in their resentment of the recruited Black strikebreakers. Over the years, African Americans who had settled in Sioux City earlier opened barbershops, gambling halls, and restaurants. These elite Blacks had integrated social contact with the white community due to their business dealings, and they resisted any further influx of Blacks, fearing the new arrivals would destroy the balance the elite African Americans had established (Schweider 1996).

<sup>102</sup> The United Mine Workers remained the state's largest union until the mining industry decreased its activity in the 1920s (Schweider 1996).

<sup>103</sup> Earlier attempts to unionize the meat packers collapsed during the unpopular strikes of 1920-21 (Schweider 1996).

Committee of Industrial Organization (CIO)<sup>104</sup>, a national confederation of industrial workers. Its Packinghouse Workers Organizing Committee enabled the workers to overcome their own resistance and that of the packinghouse managers; in 1943 Sioux City's 2,000 meat packers organized under the CIO umbrella (Schweider 1996).

The packers weren't alone in their decision to combine efforts for strength during the Great Depression. Western Iowa's farmers were among the first to feel the effects of the Depression, partially due to the increased production. Enabled by better technology, the farmers had geared up during the First World War when they were needed to supply food for the United States and war-torn Europe. When Europe resumed farming after the war, American farmers continued to produce record quantities, creating a glut in farm products. Prices for farm goods plummeted, and the agricultural Depression preceded the disastrous stock market crash by several years.

Many farmers chose to combine for power in the 1930s by planning a "Farmers' Holiday" during which they would keep farm products off the market. Scheduled to begin July 4, 1932, and last for about 30 days, farmers adopted a slogan of "Stay at Home—Buy Nothing—Sell Nothing." Sioux City, with its stock yards, dairies, and processing plants, was a natural focal point of the "holiday." Farmers Holiday Association members blocked roads into the city to prevent others from taking their goods to market (Schweider 1996). The situation turned (quite literally) messy just north of Sioux City in Plymouth County: "When the pickets failed, they sometimes confiscated and destroyed farmers' produce. At one point picketers stopped a truck carrying butter, and then spread the butter on a section of Highway 75 for a 200-yard stretch." This caused cars and trucks to slide off the road into a drainage ditch. For all its drama, the Farmers' Holiday had little impact on raising prices or improving the financial conditions of farmers (Schweider 1996).

During the Great Depression a lot of land changed hands, as banks or insurance companies foreclosed on loans, and neighbors bought and sold parcels as funds were available (Blackburn interview).<sup>105</sup> Hoping to stop the foreclosures, the governors of the Midwestern farm states met in Sioux City in September 1932 to plan a program including a moratorium on farm debts, increased credit at lower interest, and surplus controls. About 5,000 farmers were also in attendance (Schweider 1996). That November American voters, frustrated by Herbert Hoover's lack of action to bring the country out of the Depression, elected Franklin D. Roosevelt with his new philosophy: "Do anything, but do something!" In response to the call, Roosevelt looked for opportunities to put people to work.

***Conservation and Reclamation.*** Among the most visible and lasting New Deal achievements were the creation and/or improvement of public recreational facilities throughout the country. Among those accomplishments was the establishment of Stone State Park in Woodbury County. The State of Iowa purchased the land from Sioux City in 1935. From 1935-1939, the federal government stationed Civilian Conservation Corps (CCC) Company VCCC 2725 at Camp SP23 under the direction of Laurence C. Smith, a civil engineer, and landscape architect Neville Guernsey. The Civil Works Administration, Works Progress Administration, and the Iowa Conservation Commission also contributed to the project (Guernsey 1934). The CCC also made major modifications to Waubonsie State Park in Fremont County. Waubonsie State Park was established in 1926, but saw little activity until the arrival of CCC workers in 1933. CCC Company 2720 worked at Camp PE89 (Later Camp SCS17) from 1933-35; CCC Company 775 was at Camp DSES1 (later SCS1) from 1933-34. The

<sup>104</sup> The organization changed its name to the Congress of Industrial Organization in 1938 (Schweider 1996).

<sup>105</sup> During the Great Depression, the banks and insurance companies were forced to foreclose on many properties, and ended up owning lands they didn't want (Sorensen and Chicoine 1982).

men cleared trees and built a variety of structures,<sup>106</sup> including trails, overlooks, erosion control structures, stone steps, culvert, latrines, stone seats, shelters, and campfire rings (Bureau of Historic Preservation 1990). The Works Progress Administration built the portals in 1936.<sup>107</sup>

While the Stone and Waubonsie State Parks projects were important as short-term employment opportunities and long-term recreational facilities, not all CCC projects were recreation-oriented. Under the leadership of the Soil Conservation Service (SCS), the CCC was also involved in undertakings designed to control flooding and reclaim lands for agriculture. The Jones Creek Watershed project in Monona County changed the direction of the country's land reclamation efforts. Prior to Jones Creek, the SCS erected large dams at key points along major rivers in an attempt to prevent destructive floods. In the mid-1930s, some engineers challenged the established practice of building the large and hugely expensive dams, proposing that the erection of small dams along streams feeding those major waterways would be less costly and equally effective. The SCS chose the Jones Creek watershed to test the "little dam" hypothesis.

The Jones Creek watershed was first settled in the 1880s. Initially the land was used for livestock only; the rise in prices that accompanied World War I made it economically feasible to plant row crops for the first time.<sup>108</sup> The negative effects were clear and immediate: "Severe sheet erosion and gullyng began ... in 1917. By 1940 large gullies which could not be crossed had dissected the lower part of the watershed. ... Each year additional areas of good land were either eroded or rendered inaccessible by gullies." In addition, the erosion was filling Jones Creek with sediment. Each heavy rain resulted in loss of crops, until finally the land was retired to pasture. Further, the sediment quickly changed from topsoil to sterile sand and subsoil, "and threatened in the future to seriously damage or destroy the fertility of the bottom lands upon which it was being deposited" (Soil Conservation Service 1950).

Using labor from the Moorhead CCC Camp and later the Denison Conscientious Objectors Camp, the SCS constructed a system of spillways and small impoundments between 1937 and 1942.<sup>109</sup> Workers planted 30 acres with trees; improved existing pastures; relocated one mile of fence; and built eight sediment control structures and a dam near the juncture of Jones Creek and Soldier River to control floods and contain silt. Finally, they dredged Jones Creek to remove 9,400 cubic yards of silt down-stream from the spillways. The landowners did their part as well. They changed their cultivation practices from straight row cropping to contours with some strip cropping, and improved their crop rotation routines (Soil Conservation Service 1950). The undertaking successfully slowed the flow of water and captured silt, thus protecting farmlands in the Jones Creek drainage area and

---

<sup>106</sup> The National Register district includes 43 contributing resources.

<sup>107</sup> Not all public works projects successfully achieved a balance between recreation and conservation objectives. Some were so focused on creating recreational opportunities that they contradicted the conservation philosophy fundamental to the programs. For example, the Works Progress Administration cut away part of a loess bluff overlooking Half Moon Lake in 1935 to create Pulaski Park recreational facilities in Woodbury County. The WPA was also involved in many road-widening projects that resulted in the destruction of loess bluffs (Sorensen and Chicoine 1982).

<sup>108</sup> Early in the northern hills, wheat was the main crop, but by 1880 it was clear that other regions could out-produce the Loess Hills, and the agricultural economy turned to corn and/or cattle (Rogers 1990).

<sup>109</sup> The Jones Creek Watershed project is listed on National Register as a property of state significance in the history of agriculture and conservation. Its pivotal role in resolving the "big dam vs. little dam" controversy may render it eligible for National Historic Landmark status. Further research is needed to assess its Landmark eligibility. The Watershed project is publicly owned; the 9-acre Jones Lake is available for recreational fishing.

also downstream.<sup>110</sup> The success of the Jones Creek project encouraged the SCS to continue the construction of “little dams” nationwide.<sup>111</sup>

***Changes in the Cultural Landscape.*** Depression-era farmers benefited greatly from New Deal programs, better farming methods, and new technology.<sup>112</sup> One improvement adopted in the Loess Hills during the 1930s and '40s was the centuries-old practice of terrace farming.<sup>113</sup> Technological developments with durable effects included the electrification of rural areas, the genesis of hybrid seed corn, and the increased availability of farm machinery (Schweider 1996). The introduction of steam- and later gasoline-powered machinery encouraged the use of more land for market crops (Sayre 1989). Reviews of aerial photographs from 1938 to the 1970s indicated that the size of farm fields and of farms themselves increased steadily during this time period.<sup>114</sup>

The steady increases in production and farm- and field-size were met with a reduction in the number of farms in Iowa between 1940 and 1945.<sup>115</sup> Following a slow but steady trend toward urbanization that started in the 1890s,<sup>116</sup> the number of Iowans living in rural communities and the number living in urban areas reached a balance at about 1,360,000 each in 1956. Even for those who stayed on the farm, at least one family member was often forced to take a job elsewhere in order to make it possible (Schweider 1996). Nevertheless the general pattern, or footprint, of open land has remained relatively constant over the last three-quarters of a century.<sup>117</sup>

<sup>110</sup> In 1950 the federal government studied the effectiveness of the Jones Creek Watershed project, and discovered that it had reduced flooding for rains of 1 to 4 inches by 90 percent (90%); virtually eliminated flood damage below the dam; eliminated silting of Jones Creek; restored bottom lands to tillage; arrested gully erosion; reduced sheet erosion by 75 percent; and eliminated infertile overwash from bottomlands (Soil Conservation Service 1950).

<sup>111</sup> Small dams, dikes, and other erosion control features are now common in the Loess Hills landform region. In many cases, a bridge across a gully or canyon has been replaced by a dam or dike with a road crossing on the top of the dike. These dams and dikes sometimes back up ponds, but more often simply provide a shallow wetland retention area to control large storm water surges.

<sup>112</sup> Agricultural progress continued in the '40s; production increased each year from 1941 to 1945 in spite of the absence of many farmers gone to war. In Fremont County some of the labor shortage was met by using prisoners to shock and thresh wheat. By the end of the war, German and Japanese prisoners of war were working on Iowa farms (Schweider 1996).

<sup>113</sup> Terrace farming is a method of growing crops on sides of hills or mountains by planting on graduated terraces built into the slope. Though labor-intensive, the method has been employed effectively to maximize arable land area in variable terrain and to reduce soil erosion and water loss. Although some Loess Hills residents believe the practice was initiated in the Hills during the Great Depression, it was actually developed five centuries earlier by the Incas of South America.

<sup>114</sup> The spiral continued in recent decades. Rising farm product prices in the 1970s encouraged farmers to increase the size of their land holdings and buy more machinery, thus increasing their debt. The risk was realized in the 1980s when product prices plummeted. By 1984 the value of farmland decreased by twenty percent (20%) from the previous year. Many farmers, particularly those under the age of 35, were threatened with the potential loss of their land, precipitating what became known as the “Farm Crisis.” Agriculture-related industries also suffered. By 1987, Iowa had 22,000 fewer farms than it had in 1973 (Schweider 1996).

<sup>115</sup> In concert with John Fraser Hart's maxims regarding patterns of land use, the number of farms decreased significantly over the last three-quarters of a century. According to Hart, the number of farms in the four Corn Belt states (Iowa, Illinois, Indiana, and Ohio) shrank from about 750,000 in 1949 to approximately 333,000 in 1992. During this same period, the size of farms, on average, doubled (Hart 1998).

<sup>116</sup> In 1880, 85 percent (85%) of Iowans lived in rural areas (Schweider 1996).

<sup>117</sup> This may result partially because former farms are being converted into residential properties. Field patterns are retained because they are used as pasture for pleasure horses, leased to adjacent farmers, or operated as part-time hobby or retirement farms.

There has been a gradual reduction in the variety of crops cultivated in the Loess Hills. In the earliest years, the farmers' first crops were wheat and oats (themselves grasses), but it wasn't long before they discovered a wide variety of crops that thrived in the rich loess soils. By 1870 the farms of Iowa were producing wheat, corn, oats, grains, potatoes, sorghum, flax, grasses/hay, root plants, "salad" plants, and other fruits and vegetables (Iowa Board of Immigration 1870). Soybean cultivation apparently started in 1919 and by 1932 had expanded to 185,000 acres in western Iowa (Christiansen and Sayre 1989). The main pasture crop was Sweet clover (Holmes and Crickman 1938). By the last half of the 20<sup>th</sup> century, many farmers rotated strictly between corn and beans (Blackburn interview 2000), with pastures planted in hay.

Historically, apple orchards and vineyards were common, particularly around Council Bluffs and Magnolia. Orchards and vineyards were (and are still) located on the upper slopes, particularly those with southern aspects, to avoid temperature extremes. An area to the west-northwest of Magnolia in Harrison County supported a large number of orchards, but their number was drastically reduced between 1938 and 1970. Today, Small's Fruit Farm is the only retail orchard left in the once-thriving Harrison County orchard region. Similarly, in the 1940s and '50s there were more than 3,000 acres of vineyards located on the east and southeast sides of Council Bluffs in Pottawattamie County. Cooperatives and companies located in downtown Council Bluffs processed the fruit. Unfortunately, grape production in the area was virtually destroyed by the impact of the insecticide 2,4-D on the vines, and the industry has not recovered. Today, Martin's Orchard carries on Council Bluffs' fruit growing tradition, but at a reduced scale and with a shift away from grapes to stone fruit and garden produce (Martin interview 2000).

Although the location and size of pasturelands shifted over time, Loess Hills farmers consistently used the least-tillable lands for livestock. Before draining the alluvial plain, livestock grazed the marshy grasslands and farmers cultivated the prairie hilltops. Once the bottomlands were drained, farmers put their livestock on the crowns of steeper hills.

By the 1950s, the ridge tops or crowns of hills were often open pastureland divided by many cross fences. On gentler slopes to the east, fields conformed more closely to the 40-acre quarters of the Government Land Office grid system. Fields in the flat creek or river bottoms followed the alignment of the drainage, but were still fairly rectangular in shape, separated by oxbows and fences constructed along section or quarter boundary lines. Over time, the removal of fencerows and oxbows created larger fields in all areas of the Loess Hills.<sup>118</sup> In all other parts of the landform region, field sizes on bottomlands and on the crowns of steeper hills increased in size beginning in the mid-1950s. The removal of fences in the pastures along the crowns of the hills results in a pattern of fields even more strongly aligned with the ridges.

Because of the difficulties associated with growing row crops in the Loess Hills, experts have said that Hills farms are best suited for livestock production. In the early 20<sup>th</sup> century, C.L. Holmes and C.W. Crickman identified the Loess Hills as Iowa's "Western Livestock Area" (1938). The pre-dominant livestock operations focused on beef cattle, but hogs, dairy cattle, horses, and sheep were

---

<sup>118</sup> The only exceptions appear to be in lower Mills County and in Fremont County where the field sizes remain closer to the size apparent in 1938-40 aerial photographs. However, fields in these southernmost counties were traditionally larger than in their northerly counterparts. (Blackburn interview 2000)

also raised in the Hills.<sup>119</sup> In recent years, some confinement cattle and pig operations were seen in the northern parts of the landform region, but these were not common.<sup>120</sup>

Finally, more pastures or cultivated fields appear to be succeeding to young forest growth since the mid-1970s. According to Professor of Ecology David Glenn-Lewin of Iowa State University, overgrazing of the Loess Hills by domestic livestock resulted in the replacement of tall thick prairie grasses with short and thin grass species. The resultant lessening of the fuel load in addition to human suppression of natural fires has encouraged trees to further encroach into the valleys and ravines (Pohlman 1992).<sup>121</sup> This encroachment is rapid and measurable: “The overall canopy cover of the hills has increased 66% from 1953 to 1981 (Grant 1999).

***Threats to the Cultural Landscape.*** Agricultural use has posed threats to the landscape since the first Euro-Americans entered the Loess Hills. As Robert Grant observed:

The environment first experienced by Europeans was a mixed grass prairie featuring bison, elk, black bear, wolf, and cougar. Every one of these species was hunted or trapped to local extinction by the new settlers. Pioneers turned out domestic livestock in the hills to forage. This conversion of grazers is important. Bison, for example, graze while moving. They sweep through an area and may not return to it for months or years. Moreover, they are non-selective grazers and avoid steep slopes. European stock cattle, in contrast, spot-graze meaning they return regularly to the same place (attracted by the sweetness of new grass growth). By preferring certain grasses for forage, other species exploit their advantage by increasing in size and volume in these ‘disturbed areas.’ ... Moreover, cattle were pastured on steep slopes unfit for tillage. They carved trails along the pre-existing grooves in the hills, called ‘catsteps,’ exacerbating erosion. ... Varmints were eradicated, land reclaimed, productive annual crops introduced, roads and homes were built, mills and farm ponds added. New species included cows, pigs, corn, beans, brome grass, alfalfa, cats, blue grass and Russian olive trees. Other changes were less intentional, but not perceived as problematic: the erosion of the hills was dramatically accelerated; prairies were choked off by invasive trees and weeds; and whole species were replaced with such foreigners as leafy spurge, sweet clover, goat’s beard, mullein, dandelion, house mouse, Norway rat, and eastern red cedar (Grant 1999).

Cornelia Mutel added: “Most [Euro-American] settlers regarded the Hills as an obstacle, something to be reshaped into a useful and habitable landform. ... Within the loess, caves were dug to serve as small stables, wine cellars, lime kilns, and the like” (Mutel 1989b). In Sioux City, residents used

<sup>119</sup> According to Peggy Petzelka, Loess Hills farmers continued to be diversified, raising corn, beans and hay where they could, and cattle where they couldn’t raise a crop (Petzelka 1999).

<sup>120</sup> Residential land uses are also changing. Within the Loess Hills landform region, towns appear to have been developed in three different situations. (1) Some, such as Missouri Valley, Crescent, and Thurman, are sited at the base of the steep western bluffs. (2) Others are “tucked” between the Hills near creek or river tributaries near the eastern edge of the landform region, such as Glenwood and Moorhead. (3) Towns within the Loess Hills—Pisgah, Rodney, Smithland, Oto, and Castana—are often located along tributaries that cut through the Hills, which coincided with transportation corridors (first Indian trails, then stage lines, and later road and/or railroad routes). The largest two cities in the landform region, Sioux City and Council Bluffs, initially developed at the base the western bluff edges, then spread out across the Missouri River bottomland and up the hills.

<sup>121</sup> However, up until at least the mid-1970s, the trend was in the reduction of forest cover. Thompson and Hertel (1981) found that between the mid-1800s (i.e., 1832-1859) and 1974, forested acreage was reduced by 73% in Woodbury County, 51% in Monona County, 47% in Harrison County, 27% in Pottawattamie County, 25% in Mills County, and 24% in Fremont County. Only in Plymouth County was an increase noted; total forested acreage rose in Plymouth County from 3,640 acres (the smallest amount of all the counties) in the mid-1800s to 5,200 acres in 1974. All of the historic aerial photographs confirm a greater amount of acreage under cultivation in Plymouth County when compared with the other portions of the counties in the Loess Hills landform region.

horse-drawn graders to the level bluffs and valleys. Throughout the Hills, people quarried bedrock, cut timber, and used loess for fill (Mutel 1989b).

Quarrying and mining activities are still among the major threats to the Loess Hills landform region. Longtime Malvern resident Bill Blackburn noted that quarrying and taking loess for fill at construction sites is destroying the bluffs near Thurman (Blackburn personal communication). Aerial photographs indicate that mining of the western face of the Loess Hills in the area between Council Bluffs and Sioux City has been occurring since the 1960s, and is accelerating. Beyond the visual scar on the landscape, these activities threaten the loess deposits themselves: "Left unrepaired, excavations lead to serious soil erosion and can create safety hazards from mud flow." (*Des Moines Register* 1982). Construction of homes in the bluffs during the 1970s and '80s is a major problem, as once the soil is cut erosion becomes a significant risk (*Des Moines Register* 1982).

In addition to residential construction, much of the fill soil has been used for road construction. Starting in the 1890s, a popular movement focused on improving roads (Stilgoe 1988). Even prior to that, farmers advocated building roads along every section line to enhance farm-to-market connections. Nevertheless, many roads within the hills follow the landform rather than the section line, even today.<sup>122</sup>

The older roads in the Hills, intended primarily for internal transportation, were dirt-surfaced and one to one-and-a-half lanes in width. Because early road builders appreciated the vertical stability of loess soils, the oldest roads generally have very little associated ditch or backslope. However, roads cut through a hill or built into the side of a slope tend to have steep vertical walls.

By 1913, the "good roads" vision extended beyond the need for local circulation. The result was the Lincoln Highway.

The Lincoln Highway was the first transcontinental highway in the United States ... to run from New York to San Francisco. Aggressively promoted by the Lincoln Highway Association, a non-profit organization largely backed by the automotive and cement industries, this route was both a catalyst in and a product of the nationwide 'good roads' movement. Establishment and promotion of the Lincoln Highway helped focus attention on the poor condition of the nation's roads and ultimately laid the foundation for the federal highway system.

Long before highways were depersonalized with numbers, they were named for heroes, cultural icons, and destination points. The Lincoln Highway ... was the first of many named memorial highways that crisscrossed the country by the mid-1920s. .... The era of named highways ended, at least officially, in 1925 with the inauguration of a national numbering system to eliminate what had become, in little more than a decade, a confusing jumble of named interstate and numbered state highways. Two-thirds of the Lincoln Highway's length became U.S. 30 (from Philadelphia to Salt Lake City). However, colloquial reference to this route as 'the Lincoln Highway' continued until World War II.

In its initial design and construction the Lincoln Highway was little more than a collection of dirt-surfaced rural roads and a few paved city streets that had been connected on a map and labeled a cross-country highway. Through subsequent improvements, it became a precursor

---

<sup>122</sup> Today, roads within the Hills are fairly evenly split between those that conform to the rigidity imposed by the Government Land Office survey and those that respond to the natural topography. Those roads in the steeper hills (generally, the west side of the landform region) are most likely to respond to the topography.



to today's multi-lane high-speed, interstate highways. Although portions of the road in the far West would never be paved, by the early 1930s motorists could drive the Lincoln Highway on a continuous line of pavement from New York to Missouri Valley, Iowa (Decision Data, Inc., and Tallgrass Historians, L.C. 1998a)<sup>123</sup>

Vehicular circulation patterns in the Loess Hills region remain remarkably constant from 1937-38 through today,<sup>124</sup> although improvements have been added over time.<sup>125</sup> For many lesser-traveled roads, the improvements were limited to the addition of gravel and a reduction of the steep angle of the backslopes; surfaces of some lightly used routes are still dirt. More heavily traveled roads were altered by widening the road bed, converting to a paved surface, adding stabilized shoulders, lowering the angle of the backslopes,<sup>126</sup> and stabilizing the shoulders and backslopes with brome grass. Backslopes are reduced in angle so the steep banks don't shade the road in the winter.<sup>127</sup>

In the late 1950s, the perceived need for rapid transcontinental vehicular transport resulted in the construction of the federal Interstate Highway system. In western Iowa, Interstate 29 followed the historic north-south trace at the base of the western bluff line (Sorensen and Chicoine 1982). Interstate 80 traverses Pottawattamie County on an east-west course. The ease and speed of Interstate Highway transportation has encouraged urbanites to use the Loess Hills as a "bedroom community" while they earn their living in Sioux City, Omaha/Council Bluffs, or Glenwood. Commuters are perching huge houses on the hills to enjoy the spectacular views, and contributing to their destruction in the process by interrupting the bluffs' majestic horizon (Grant 1999; and Mutel 1989b).<sup>128</sup> The Loess Hills formation around Sioux City, Crescent, Council Bluffs, and Glenwood (and to a lesser extent around Missouri Valley, Thurman, and Hamburg) are threatened by sprawling expansion. Council Bluffs and Crescent, in particular, have tripled in area covered by residential and commercial development.<sup>129</sup>

<sup>123</sup> Because Iowa state law forbade the expenditure of state funds for road construction, the Lincoln Highway in that state was initially (1914-1917) funded by county boards or municipal governments. In 1916, farmers pressured Congress to pass the first national road and highway legislation, the Federal Aid Road Act. Federally financed road improvement projects accelerated with passage of the Federal-Aid Highway Act in 1944 (Cochrane 1979).

<sup>124</sup> In Harrison and Monona counties, the older road patterns appear to be more intact than in other counties. They have more narrow dirt roads with sharp curves, steep grades, and steep backslopes are evident. In Mills and Fremont Counties, roads are more likely to be improved.

<sup>125</sup> These improvements probably began after 1940. See Cochrane 1979.

<sup>126</sup> High banks along dirt roads trap snow and ice and, because they are shaded, the road surface remains wet or impassable for longer periods (Blackburn interview 2000).

<sup>127</sup> The growing trend to allow higher speeds on local roads has required more "improvements" (i.e., straightening of curves, paving road surface, widening shoulders, decreasing slope on backslopes, and widening the road surface), thereby changing the historic character.

<sup>128</sup> However, Don Reese noted that even the concept of the Hills as a bedroom community has its historic precedents. R.T. Reese, a Welshman who arrived in Council Bluffs by way of Ohio in 1855, decided to abandon plans to go to California gold fields and settled in Iowa. He established a business in Council Bluffs as a harness and saddle maker. The following year he claimed some farmland along the Little Sioux River in Monona County. Over the years, his family ran the farm, and he commuted 70 miles every weekend from Council Bluffs to be with them. Eventually Reese left the harness-making business and established a general store in Turin, closer to the farm. Still, he continued to commute while his sons ran the farm (Reese 1994).

<sup>129</sup> Another disruption of the landscape is the proliferation of cell telephone towers in rural America. It has been suggested that a tower will eventually be placed on every square mile throughout western Iowa.

Improved roads have brought hundreds into the Hills to live, and thousands for recreational purposes. Loess Hills recreational tourism was popularized with construction of the Lincoln Highway in the 1910s and '20s, and has become increasingly popular as America's workforce fought for shorter work-weeks and better pay, making more time and money available for recreational pursuits. Faced with a general decline in the agricultural economy in recent years, some Loess Hills farmers have begun charging "outfitters" fees in exchange for exclusive rights to access their marginal lands. The "outfitters" assemble groups of hunters and bring them into the Loess Hills (Petrzelka 1999). The use of motorcycles and dirt bikes has become a common sight in some parts of the Hills, resulting in visual blight and severe erosion in affected areas.<sup>130</sup>

**Sugar Clay.** Intrusions, erosion, sometimes even destruction ...the threats are many. Yet so is the promise. Modern perspectives on the Hills today are as varied as those of the blind men looking at the elephant. Some look at them through teary eyes, saddened, as Diane Blankenship was, "by the wounds brought on by 'progress'" (Blankenship 1994). Others focus on the differences between a healthy prairie and one deprived of fire. A few squint at a loess bluff and calculate how many bricks it will make, or how many cubic yards of fill. Not too many notice that the gas stations and golden arches now mark the Interstate highway exits as rhythmically as the grain elevators and depots once marked stops on the railroad.

And some will experience the Loess Hills as Bill Blackburn does. When Bill looks at the Hills, he sees the land to which his great-grandparents, Philip and Mary Forney, came with their parents in the 1840s. This land that was shaped by the Forneys has, in turn, shaped five generations of descendants who still make the Hills their home. Bill calls the loess "*sugar clay*." He notes that a vertical cut is as strong as steel, but exposed horizontally, loess dissolves like sugar. It is the perfect analogy for recognizing the strength and the frailty that caused the Loess Hills to be called "Fragile Giants."<sup>131</sup>

---

<sup>130</sup> For example, the use of recreational vehicles near the Lewis and Clark Monument on the northern edge of Council Bluffs has eroded soil to a depth of 10-15 feet. (*Des Moines Register* 1982).

<sup>131</sup> "Fragile Giants" is a term coined by noted author Cornelia Mutel. Her books *Fragile Giants: A Natural History of the Loess Hills* (1989a) and *Land of the Fragile Giants: Landscapes, Environments, and Peoples of the Loess Hills* (1994) are standards for understanding and appreciating the Loess Hills.